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GIFT
JUL 25 1915

Gleanings in Bee Culture



Southern Headquarters for Italian Queens



Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, \$1.00 each. No disease, pure mating and safe delivery I guarantee.

W. D. ACHORD, Fitzpatrick, Alabama

Broadway Central Hotel

667 to 677
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New York

The oldest, most comfortable, and most ECONOMIC Hotel in the East. . .

Room with Privilege
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Largest and best Sample Rooms
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DAN C. WEBB
Broadway Central Hotel

Hotel Warner

Overlooking Lake Michigan—Homelike Surroundings

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and Groveland Park

CHICAGO

Wabash Ave.—Cottage Grove Car
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200 Private Baths

Rooms with Private Baths at \$1.00
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2 and 3 Room Suites with Bath \$2.00
to \$3.00 per Day

First-class Restaurant at Moderate
Prices

Table d'Hote Dinner 50c

Chicago's BEST Hotel at the Price

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. ROOT, Editor Home Department
H. H. ROOT, Managing Editor

E. R. ROOT, Editor

J. T. CALVERT, Business Manager.
A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIII.

JULY 15, 1915

NO. 14

EDITORIALS

A New-old Method of Swarm Control that Promises Much

IN this issue, on page 573, the reader's attention is directed to an article by Chalon Fowls. If the reader can wade through our long introductory he will see there are certain references in connection that will be worth his while to go over carefully, especially if swarming in season and out of season is one of his troubles.

Our columns are open to a full discussion of the subject, and we hope many questions will be asked.

Chocolate Honey Candies

MR. EDWARD HASSINGER, on page 531 of our last issue, speaks hopefully of making honey confections by coating granulated comb honey, and ordinary comb honey not granulated, with chocolate. Apparently he has not made a success of the idea. We may say for his information that quite a number of beekeepers have done it, including the A. I. Root Co. We have sold granulated extracted honey and little chunks of comb honey covered with chocolate. There is no trouble about doing this if one understands the art of making candy or handling chocolate. These honey chocolates are very fine. The only objection is, they are *too* good. They are so concentrated a sweet that one can eat but a very small amount.

Politics and Wire Pulling in Pennsylvania

IT will be remembered that there was some prospect that the State of Pennsylvania might appropriate \$50,000 for bee-inspection work and to carry on apicultural investigations. This was finally whittled down to one-tenth the amount, or \$5000, and at the last moment this has been cut in two, or \$2500. This, however, will be a good deal better than last year, and we suppose the beekeepers of the state will have to be thankful for what they got; but at the same time it is not enough to cover

the state. If the governor wishes to promote agriculture he must commence with the most neglected branches, and he must see that enough money is given them to insure their proper development.

The Apicultural School at St. Paul, Minnesota

THE apicultural school that has been doing such good work under Prof. Francis Jager, at St. Paul, Minn. (see page 541, last issue), is to have another man to help in the person of Mr. L. D. France, of the University of Wisconsin, in the capacity of assistant professor of bee culture. The Frances are all expert beekeepers; and the young Mr. France, son of N. E. France, many years General Manager of the National Beekeepers' Association, and foul brood inspector of Wisconsin, will be well equipped for taking up the practical as well as the scientific end of the business.

Newspaper Men Eat Honey

AN "All-Oklahoma Dinner" in which Oklahoma honey figured prominently was that given the State Press Association by the A. and M. College at Stillwater last month. Rev. R. S. Satterfield, Pauls Valley, owns the apiary which produced the honey. Mr. Satterfield is vice-president of the State Beekeepers' Association.

The banquet meats, flour, salt, grape juice, ice cream, peanuts, and even the waitresses, were all Oklahoma products gathered within the state boundaries by the committee from the college faculty in charge of the dinner arrangement.

It was, of course, impossible to ignore the position of the honey as a prominent Oklahoma product.

Here is more Sweet-clover Publicity

"SWEET CLOVERS, Some Facts of Interest about this All-around Forage Crop and Soil Renewer," is the title of a 30-page illustrated booklet just off the press.

A member of the GLEANINGS editorial staff has simmered down the information in the national and Ohio bulletins on sweet clover and in the pamphlet, "The Truth About Sweet Clover," written by A. I. Root. The writer has added some new information which has been brought out of late in farm magazines and in GLEANINGS.

The wide adaptability of sweet clover, its value as a soil-renewer, its usefulness as pasture and hay, and the methods of securing a good stand, have been featured in a logical and readable manner.

To individuals making application we shall be glad to send these booklets for one cent to cover postage. Organizations can secure them in reasonable quantities free of charge by giving the name of the president and secretary and stating the number desired.

Fire Damage of \$15,000 to R. G. Coombs

It will be remembered that some time ago a brother-in-law of Earl M. Nichols, Mr. Herbert F. Cary, of Lyonsville, Mass., a dealer in beekeepers' supplies, was killed in an automobile accident—p. 878, 1914. The death of this brother-in-law handling another line of their business made it necessary for Mr. Nichols, his partner, to give up the bee supplies, and he sold out to Mr. Robert G. Coombs, of Guilford, Vt. Since then, Mr. Coombs, on June 22, suffered the loss by fire of his factory building, containing some \$15,000 worth of bee supplies. In the mean time, he himself was taken down with appendicitis. Fortunately the fire did not cause a total loss, as some of the goods were stored in a private dwelling. Nothing has been said as to whether the property was covered by insurance. In the absence of any statement to the contrary we assume that it was, and that the business will be taken care of as formerly as soon as Mr. Coombs recovers. Further particulars will be given later.

How Advertising Confidence is Created

FROM breeders of bees and queens who seek to use the advertising pages of GLEANINGS we have been expecting certain explicit information regarding their plans and ability to back up their promises with performances.

We have been requiring to know of every one taking space in our columns how large his yard, the quality of his stock, when he expects to make his deliveries, and especially have we required reliable information regarding the character of the advertiser

and his ability to refund promptly money which has been placed in his hands for certain orders.

The difficulties of the queen business in this country are almost as great as those of the king business in Europe.

For the protection of subscribers, therefore, it is only fair that we scrutinize the promises so closely. Since this reacts favorably on the value of the advertising itself we are not surprised to receive numerous letters in the vein of the following from a well-known firm of queen-breeders:

Permit us to express our most sincere esteem of your firm. The stand you are taking in refusing advertisements in GLEANINGS has increased our estimation of that periodical more than we can tell you.

Advertisers recognize that the appearance of their announcement in GLEANINGS IN BEE CULTURE is itself a credit rating. Buyers understand this, and are ordering in confidence.

Moving Bees in Carlots from North to South Not a Financial Success for Honey Alone

ELSEWHERE in this issue, page 587, will be found a report by E. R. Root, of moving bees from north to south. It is much easier for one to tell about his successes rather than his failures. Perhaps in this case we should refer to what has not been a great success. While we have not lost anything in moving bees from south to north we cannot say that we have made very much money at it. The railroad companies charge so high a rate on bees, plus the railroad fare of the attendant, that they will shut out migratory beekeeping on a large scale. It cost us nearly \$2 a colony to move a carload of bees from the North to the extreme South, and of course it costs as much to get them back. It goes without saying, that no man who is working for honey alone can afford to take the chance. Even if he can get three dollars' worth of honey in the South, and three dollars' worth again in the North, after the bees are moved back, he would hardly get enough to pay for his own time, for the simple reason that he would have to pay out two-thirds of his gross proceeds for transportation alone. But it is quite a different proposition when one moves bees south for making increase, and then sells the bees at a fair price on arrival back north. If he can secure a crop of honey while in the South, he is so much ahead. From the first two cars we did this; from the two cars last year we didn't; but from the two cars this year we may do it again.

Clover Prospects and Honey Crop

It has been a most peculiar season so far. A comparison of the weather maps seems to show that conditions at Medina have not been materially different from other clover localities in the northern and central states.

We would have one or two days of bright sunshine and warm weather, during which the bees would rush out on the clovers—alsike, white, and sweet. Later on came the basswoods that yield heavily in the morning; and just as the bees would get to the point where they would begin to fill their combs, rain or cold weather followed. This program of two days of good weather followed by two days of cloudy, cold, or wet has been re-enacted back and forth for nearly six weeks. Fortunately the copious rains every three or four days have delayed the cutting of the alsike in the fields, and given a new growth to white clover and sweet clover. Notwithstanding white and alsike have been in bloom for five weeks, there are at least two weeks in sight of abundant bloom at this date, July 9. Basswoods are out in all their glory. They never yielded a heavier bloom if we could only get the weather. Notwithstanding these diverse conditions our hives are filling up with honey, and stronger colonies are storing a little surplus.

If Medina and vicinity are any criterion there will be some clover honey, both comb and extracted. If we could have two weeks of favorable weather, 1915 might go down as a real old-fashioned clover year. At present writing no one can make an accurate forecast. But it is safe to say there will be some clover and of a fine quality. Whether the general aggregate crop over the country will be light, medium, or heavy, is yet to be determined. It will be medium in some localities and light in others. In some few favored spots there will be a heavy yield of basswood, and clover, for this appears to be a basswood year.

Conditions have not been entirely favorable for alfalfa honey in the Rocky Mountain regions; but as those localities always furnish some honey, it is probable there will be from a light to a fair yield of alfalfa, both comb and extracted. The cheaper grades of honey, including the ambers, will not be as much in evidence this year as last. Indeed, the crop will be light. We are assured now of at least a light crop of sage in parts of California and of alfalfa in the Rocky Mountain districts, and a light crop of clover in some of the clover districts of the North.

Prices ought to be reasonably firm. There will probably be no great glut of honey of any kind, this year. What there will be, will be confined to table quality that ought to find a fair market. Those who were wise enough to run to comb honey will have no trouble in disposing of it at fair prices provided it is No. 1 to fancy; but those who continued to produce only extracted will have to watch their chances to get best prices. These are usually secured early in the season.

Later, July 13.—Since writing the foregoing, conditions for honey production have improved very materially. The weather has turned hot and remained hot. Honey is now coming in at a rapid rate—very much better than it has been doing before.

Reports from over the country so far show that one-third indicates a good crop; one-third, from one-half to a fair crop; and one-third show a short crop or none. Early reports were less favorable than those that came in within the last few days. It would not be surprising if there would be a good yield of clover and a little basswood throughout the north-central states. There is at least two weeks of clover in sight.

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The Most Eminent Pennsylvanian

THE editors of papers and periodicals in Pennsylvania have been asked by Governor Brumbaugh to name the most eminent Pennsylvanian. As GLEANINGS IN BEE CULTURE reaches several thousand readers in the Keystone State we feel that we at least have a right to interpret the Governor's invitation as applying to our knowledge of the men in that state.

Persons engaged in any business become accustomed to thinking in the terms of their business; and those who are devoting their attention to certain lines of activity or specialty become better acquainted among themselves and with others within their specialty than they do with persons in other professions.

In the apicultural field there is one in Pennsylvania that stands pre-eminently first, and this statement reflects no injustice on the tens of thousands of bee-keepers in that state. They themselves have for over ten years regularly re-elected Prof. H. A. Surface, State Zoologist, of the Department of Agriculture, as president of their State Bee-keepers' Association. He has written a bulletin on beekeeping in Pennsylvania, which is accepted by them as authority for both theory and practice. He

is known as a practical worker as well as a thinker, writer, and speaker. No one who knows of the development of beekeeping in Pennsylvania and of the effort to preserve this industry from the destructive attacks of bee diseases will fail to say at once that Prof. Surface has been pre-eminently most conspicuous in this work. Not only is he known in Pennsylvania, but also in other states.

After an address before the New York State Beekeepers' Association the authorities of that state wrote him that the beekeepers for whom he had spoken had voted his address as the best that was given, and they desired notes from which it could be published; but as it was extemporaneous, and its merits were in part due to the stimulus received from a sympathetic audience, it was, unfortunately, impossible for them to procure it and preserve it in printed form.

We have so many different lines of eminence that we cannot speak for all; but it is certain in our mind that if the 25,000 beekeepers in Pennsylvania could vote for the most eminent man in their profession as well as the one who has been most active in other lines of agriculture, and who is best known for his general agricultural service in that state, it would be practically unanimous for their State Zoologist, H. A. Surface. We therefore take pleasure in presenting his name to Governor Brumbaugh for all honors and opportunity that can be accorded him.

Death of A. E. Manum

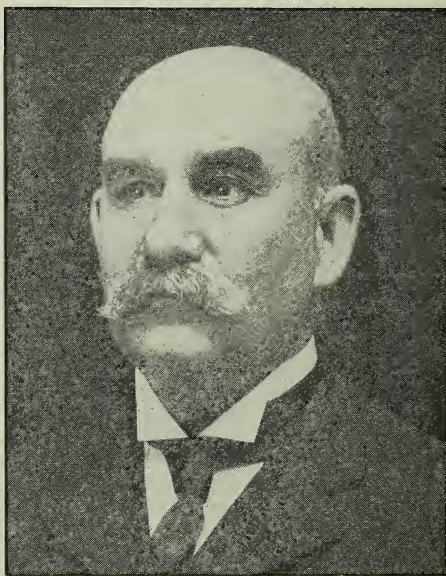
In the early 90's we visited Mr. A. E. Manum at his home in Bristol, Vt. He was at that time one of the most extensive beekeepers in New England if not in the whole United States. We were so well pleased with his swarm-catcher that we introduced it to the public, with the result that from that time to this it has been sold by practically every supply dealer in the United States. He was not only an extensive beekeeper in those days, but his influence extended far and wide to such an extent that beekeepers throughout his state adopted his hives and fixtures.

In late years the beekeeping world has lost track of him. It appears that the cutting of the basswoods, that had been almost his main stay, and the failure of clover caused him to go out of the business some ten or twelve years ago. For the last thirteen years he has been in Pasadena, Cal., where he spent his time in raising

fancy poultry and eucalyptus lumber. The news has just reached us that he died in Pasadena, June 26, at the ripe age of 77. Thus another one of the old veterans has passed over the line.

W. T. Falconer

IN our issue for June 15, page 477, we gave a preliminary announcement of the death of W. T. Falconer, of the W. T. Falconer Mfg. Co., so well and favorably known to beekeepers all over the United States. Mr. Falconer, besides being actively engaged in the manufacture of beekeepers' supplies, was connected with a number of other large enterprises in the capacity of president, officer, or director. From a newspaper clipping announcing his death, it would appear that he was a



THE LATE W. T. FALCONER.

public-spirited man, well known and loved by all who knew him. In a business way we found him to be in every way a gentleman—fair and square, even though he was a direct competitor.

He started originally with his father at Falconer, N. Y., in the manufacture of sash, doors, and blinds. Later on he took up the manufacture of beekeepers' supplies, and finally became president of the W. T. Falconer Mfg. Co. Later on he took up the manufacture of rules and some other advertising novelties. In this he was very largely engaged. He was

connected with the Gurney Ball-bearing Co., Chautauqua Woolen Mills, the New York Oil Co., Chautauqua County Bank, and the Jamestown Street Railway Co., all of Jamestown, N. Y. Besides this he was actively identified with various fraternal organizations, and a member of the Jamestown Club. At the time of his death he was 65 years old, having rounded out an activity both in business and social circles that few men are capable of undertaking, and of which any man might be justly proud.

As we stated in our issue of June 15, the policies of the W. T. Falconer Co. will continue as before. In 1910 the firm was incorporated, and Mr. A. C. Davis, a son-in-law of Mr. Falconer, took up the active interests of the concern.

A Massachusetts Summer School of Beekeeping

What is, perhaps, the first itinerant school of beekeeping is to be held the first week in August by the Massachusetts Agricultural College, the Essex County Agricultural School co-operating.

This school is intended to be of help not only to the professional beekeeper but to market-gardeners, fruitgrowers, growers of cucumbers under glass, managers of estates and institutions, etc.

Of the instructors, Mr. Geo. W. Adams is a prominent beekeeper of Essex County, with an experience of years. Mr. F. L. Davenport is an instructor of the Essex County Agricultural School, and has charge of the beekeeping work there. Mr. Fred A. Smith is director of that school, a man well versed in beekeeping. Mr. Gladstone H. Gale is a deputy apiary inspector in Massachusetts. Dr. Burton N. Gates is head of apicultural work in Massachusetts Agricultural College.

The school will open August 4 at Hathorne, Mass., and will last for four days. Topics of lectures will be such matters as the explanation of elementary equipment, Italianizing, the necessity for bees in fruit-growing, and suggestions for honey production.

Details of arrangements and accommodations, and all inquiries, should be addressed to Mr. Fred A. Smith, director, Essex County Agricultural School, Hathorne, Mass. Applications for registration in this school should also be addressed to him.

The opportunity open to the beekeepers of Massachusetts we wish could be available for the craft throughout the nation.

Such schols as this one—short, inexpensive, yet full of instruction—insure the spread of efficiency in apiculture.

Sweet Clover will Turn a Poor Yellow Sandy Soil to Rich Black Loam

The following article appeared in the *Rural New Yorker* for July 3. It contains so much of value that we are glad to reproduce it in these columns. The legume has not made rapid progress in the old thickly populated states, mainly, we suppose, on account of a silly prejudice against it as a noxious weed; but here is a case where one farmer says 100 per cent of his farm is in sweet clover; that it will "turn a poor yellow sandy soil to rich black loam," that "stock of all kinds like sweet clover better than alfalfa," "contains more protein and yields more tons to the acre than any other legume."

How to get these results he explains. Many another farmer in the old conservative state of New York would do well to give it a trial.

SWEET CLOVER IN NEW YORK STATE.

I have read with pleasure F. R. Allen's sweet-clover article. His experience with it as a pasture plant agrees with mine, and mine has extended over many years; 100 per cent of my farm is in sweet clover, and I doubt if any one else in New York can say this. Mr. Allen's plan to sow the seed two years in succession is correct; after that there will be enough seed scattering off each season to keep up the stand. This makes a perennial of it, same as alfalfa. He says that he sowed 10 acres in May, 1913, that had been in corn in 1912, but does not say whether he plowed it first or not. If he did I do not see how he could have been so successful with it, as sweet clover must have a hard seed-bed. Simply disk your sod or other ground three times in the fall, not earlier than November or December (last thing before frost, so that no weeds can start up), then roll twice, so as to get the seed-bed solid. Then any time during January or February sow 20 pounds per acre of hulled seed (white only) half each way, so as to get it even on top of the ground or snow. Freezing and thawing during the winter and spring will do the rest. If he had done this with the 25-acre field he would have had a fine catch. Sweet clover will grow luxuriantly on poor sandy soil that will not produce alfalfa, clover, nor any grain crop, if treated as above, and it will turn a poor yellow sandy soil to rich black loam in less time than any other legume. There is no poorer soil in New York than the sand belt in Schnectady and Albany counties, much of it being of the "drifty" kind.

Stock here of all kinds like sweet clover better than alfalfa or any other legume, which agrees with Mr. Allen's article. As it will produce abundantly where nothing else will grow, contains more protein, and yields more tons to the acre than any other legume, why not raise it for hay as well as pasture? I believe in giving cattle the feed they like as long as it increases milk production, as this is what the farmer is after. I cut my clover about June 15, before it commences to bloom, while it is tender, taking off perhaps 1½ to two tons per acre, and then in August thrash out a seed crop worth at

least as much as six tons more of hay, as long as the price remains where it is. The yield of seed will average about three times as much as alfalfa or red clover, as sweet clover so far has no insects nor diseases of any kind, and it is worth \$15, while the other two can be bought for \$9.

Schenectady Co., N. Y. A. BLOOMINGDALE.

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Some of the Fallacies of the Past; Trying to Follow every new Hive or Idea

SOME years ago GLEANINGS was criticised for advocating in some cases certain new hives and ideas. The pages of apicultural history record many a new thing that was going to revolutionize the beekeeping world. Some of them looked very promising. The divisible-brood-chamber hive, for example, occupied pages and pages of matter from 1885 to 1895. The slogan was to "handle hives instead of frames;" but to-day nearly every one has gone back to the regulation ten-frame Langstroth hive and dimensions. We say "nearly every one" because some use and like the divisible principle. Reversible frames in the early 80's in a like manner had their day, and yet there were some good things about them. Reversible hives also came up about the same time; but the reversing of either hive or frame is now nearly forgotten.

Shake or shook swarming was exploited a few years ago. There were some good things about it; and while there were many modifications of it, the old plan of shaking bees of all ages to make an artificial swarm is not practiced as it once was.

In earlier days the pollen theory occupied whole pages in the bee-journals. If we could only get rid of the pollen in the brood-nest in the fall, it was argued, there would be no dysentery and no winter losses. The fallacy of this has been shown, and to-day good stores and pollen in the outside frames are essential for early brood-rearing. Some early springs do not furnish a sufficient quantity in time.

Non-swarming hives have had their fair share of attention; and it would be unfair to say that there was nothing in some of the principles advocated; but to-day the scheme of swarm control seems to revolve about the man and method rather than the hive.

In earlier days still, there were all kinds of devices to catch the moth-miller and the moth-worm; and while the pest is still troublesome in the South, it is now the least of the beekeeper's trouble, because he knows he can handle it with a vigorous strain of bees.

Well, has any good idea been evolved in late years that was not found in the old

original Langstroth book? Yes, many of them. When Langstroth went into the apicultural field he saw the importance of mobility in the use of combs. He invented and put into use an entirely new principle; but in making a device to hold combs he went clear to the other extreme—his frames were too movable. To-day, while there are thousands and thousands who will use nothing but the old original Langstroth, the beekeeping world at large in the United States is using some form of self-spacing frame.

Langstroth, in his day, did not know much about liquid honey; but there came, shortly after, the centrifugal honey-extractor. That device has been improved year by year, until now honey can be taken with a little engine in large quantities, and at a great saving of labor. Comb foundation followed shortly after, and with it the section honey-box, separators, fences, and the modern supers for holding them. Uncapping-devices in the form of knives; improved methods of shipping bees by express and in ear lots; stronger and better-made hives; double-walled hives for wintering bees outdoors.

In the matter of hives themselves, no great and radical change has been made from the old original Langstroth except to make a simpler hive—a plain box without porticos, a simple detachable bottom-board, and a double cover.

But there are some hives that it would have been better for the beekeeping world if they had never been "born." They cost money and tons of paper, to say nothing about printer's ink, to exploit their claims. Some of these new ideas or hives have cost thousands of dollars to the users of them. Because of this the tendency seems to be to discount everything new in the form of a hive; and any man who will essay to give the beekeeping world something better, is the butt end of jokes and sarcasm, and in most cases, at least, he ought to be. Shall we therefore ignore all who attempt to put out a new idea? Nay, verily. Such a policy would have killed the Langstroth hive and frame, the honey-extractor, comb foundation, and other wonderful devices before they were born.

There is one very good rule for every one to follow—let the other fellow do the experimenting with the new hive and frame—that is, the inventor himself; then if you feel like trying the device, test it out on a very small scale. In the mean time, stick to the standard goods and to standard methods, and you will be a happier and a wiser man, with more clean cash in your pocket.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



J. E. CRANE, that wetting the joints of sections with steam looks good, p. 482. But why didn't you tell us just how? Can you do a whole box at a time? My guess would be to elevate the box so as to direct the jet of steam from beneath.

WESLEY FOSTER is such good authority that if he says spread brood as he seems to on page 436, I don't dare dispute. I wonder if it's like stimulative feeding. I don't think that ever pays here; but in Colorado it pays big, at times when without it brood-rearing would entirely cease. Does spreading brood come good at the same time? Note that he practically says it doesn't pay when nectar and pollen are plentiful.

R. F. HOLTERMANN, you have my gracious permission to go through three motions in place of one in turning a frame over, p. 491, if you want to, but time's too precious "in this locality." With my first comb I had to do it or break combs. My assistant never has done it, and she's been handling combs thirty years. Moreover, she holds a comb flat when looking for a queen, and has never broken one. Wonder why yours break.

It is not clear, according to p. 480, "whether merely introducing a queen, without shaking or dequeening, accomplishes a cure or not" in cases of European foul brood. I don't know, but I should think it might at least be a help in most cases, even if a queen of no better stock were introduced; for in most cases when a queen is introduced there is at least a little break in brood-rearing, and that break helps the bees to clean up.

THE fact, p. 433, that Mr. Chadwick's queens lay more in a year than Mr. Byer's or mine explains why they should play out sooner; but does it explain why he should have more laying workers? When a queen goes bad my bees supersede her whether she's three years or three months old, and without any laying workers either. Why shouldn't the same bees do the same thing in California? 'Spect it's that Cyprian blood. [In California, queens might play out at a time of year when conditions were not favorable for the bees to raise another. Perhaps there are no eggs in the hive; the queen dies, and laying workers would naturally follow.—Ed.]

WESLEY L. ROBERTS, p. 415, you are starting on the wrong basis when you think good is more persistent than bad. It's often,

if not generally, the other way. Also you are away off if you think that crossing, after the first cross, always means "a breaking-up of all good qualities." It means variation, and there may be good variation as well as bad. Let me give a leaf from my own experience, an experience that you cannot have had unless you're grayer than I think you are. I had blacks, pure and simple, for five years. Then I got Italians, and had a chance to compare the two side by side. No room for discussion—the Italians were far and away ahead of the blacks. Then I had crosses, not merely the first, but the tenth or more. Some were very poor; some were excellent. As to persistence, it's been a fight of 49 years against the tendency to black blood. So I feel warranted to say Italians are better, blacks more persistent.

J. E. HAND, you ask, p. 400, "Shall we resort to the abnormal condition of queenlessness with its psychological depression upon the energies of the bees, as advocated by Dr. Miller?" Evidently you don't like my idea of having the colony ten days without a laying queen, and then, in its place, you propose—exactly the same thing! For don't you see that when you give a queen-cell in place of the queen you leave them as long without a laying queen as I do? To be sure, the bees may be in a little better state of mind with a ripe cell than with young cells just begun; but I don't suppose the difference is great. The thing that turns the trick is the same in both cases; it's that ten days with no eggs laid. Let's compare. You give a cell, with the chance that in that cell there may be a virgin with a bad wing, resulting in a drone-layer, or there may be even a dead larva. I eliminate that risk by giving at the end of ten days a young laying queen. Isn't mine the safer plan? But I've tried your plan in a few cases, and it avoids all the fuss of keeping the young queen in a nucleus and then introducing her, making it, oh so much easier! that I should prefer it if I could be sure that it never involved the very thing we are both trying to avoid—swarming. Tell us that you have tried it as many as a hundred times, and that the young queen has not swarmed out in a single case, and I'll accept yours as the better plan. But I would not use either plan for the whole apiary—not for money. I'd want a few of the most promising queens left to make a record, so that out of them I could select the best to breed from.

J. E. Crane

SIFTINGS

Middlebury, Vt.



It is very dry at this time here in Vermont, June 8. We have had little rain since Feb. 25. Clover is just beginning to blossom; and what we think we need is a "splendid life-saving rain," as Grace Allen would say.

* * *

Please, Arthur, I wish you wouldn't call the bees "poor little cusses," page 455. It isn't in good form, and almost makes a lump come in my throat. I am whispering this so no one will hear what I say but just you and me.

* * *

I met our State Commissioner of Agriculture on a train last week. He informed me that he had sowed several acres of sweet clover this season; and our county agricultural agent informs me that the interest in this crop is increasing. Well it may, for our old pastures are already drying up.

* * *

I quite agree with Wesley Foster, page 356, May 1, as to the best method of treating foul brood. Almost any method in the hands of ignorant beekeepers will be liable to prove defective or worse than useless. It needs the patience of Job and perseverance of Paul to keep up the fight.

* * *

When I read that account of 1200 acres of sweet clover, page 375, May 1, I just wanted to migrate to such pleasant pastures at once; but when I turned to the next page and read Virgil Weaver's experience in taking his bees to sweet-clover fields I thought it best to hear both sides before I decided to start.

* * *

I find in traveling about that beekeepers have different ways of estimating the value of their bees. Some count the number of their hives containing bees, while others count or estimate the number of bees in a hive. It is almost needless to add that the latter class are the more successful beekeepers.

* * *

Mr. T. J. Quail thinks alfalfa never yields honey east of the Missouri River, 153, June 1, and asks the experience of other men on this question. Well, I have seen bees work on alfalfa as fast as on any other flowers right here in Vermont. As a rule, however, it does not yield much honey here in the East. It may later.

More and more dandelions every year. It does one good to look over the fields of gold in May and feel that such gold does not demoralize any one, not even the bees. The fields that were gold have since become hoary with the seed-heads. I found one plant yesterday that had over one hundred heads; and as each head had nearly 250 seeds that one plant must have had nearly 25,000 seeds—enough, if evenly distributed, to seed well half an acre. Blessings on the dandelions! They have given us this year thousands of pounds of honey that have kept the bees rearing brood in great shape.

* * *

There is a good deal of discussion this spring about the spreading of brood, and it is well. Wesley Foster tells us it should be done with care, page 436, June 1. How? I have found it sometimes advantageous to take a comb of sealed brood just beginning to hatch, and give a weaker colony and take one with a few eggs, and give to the strong one. Sometimes we may spread brood by an empty comb from the weaker colony, or shaving the cappings of honey above the brood, or at one end of the frame of brood; sometimes, again by taking away a comb of honey and giving a dry comb instead, and finally sometimes by giving a young queen.

* * *

The discussion in the May 1st and May 15th numbers of GLEANINGS as to whether the spraying of fruit-trees injures bees seems rather amusing to one who has had some experience along these lines. One of my yards I found early in May before fruit bloom in fair condition, and coming on well, the same as other yards, but at the close of the bloom I find the old bees nearly gone, and the young bees and brood dying. While all of our other yards have continued to improve, this one has gone back and is not in nearly as good condition June 1st as on May 1st. It seems pathetic to see a ring of dead brood far outside the present cluster of bees, showing where the cluster was able to rear before fruit bloom, or to see the newly hatched bees crawl out of the hive into the grass to die. Evidently the poisoned honey is stored to some extent or it would not kill the newly hatched bees. Such colonies do not recuperate readily. The honey continues to kill the brood for some time after the fruit bloom goes by. With care a part of the yard can, perhaps, be put in shape to winter; but it looks now as though many of the colonies would die out.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Did you ever notice that the most ardent "free trader" is in favor of a tariff on his particular product? The beekeeper is no exception.

Mr. E. F. Atwater's air-drainage article, page 496, June 15, does not appeal to my sense of reason in the least. Air drainage is a term I cannot quite comprehend, to say nothing of being able to fix it in my mind as anything more than a fancy.

There is nothing that will discourage the swarming fever more than to remove the old honey from the extracting combs before the new flow begins in earnest. The fact that there is plenty of old comb honey on hand seems to satisfy their judgment that swarming is their only recourse.

Dr. Miller says, page 481, June 15, "And you cannot know the performance of a queen until she has lived through the full season"! I recently had a young queen that filled five combs full of eggs in five days from the time she started laying. That is performance enough for me.

In a discussion with my friend Mr. Bixby a few years past, I contended that I lost no more bees on a cold day when they were going three miles to the orange than those that had only half a mile to go. In this I am convinced that Mr. Bixby was right, the past season having proved to my satisfaction that the loss is considerably greater on the long-distance flight.

Mr. Scholl thinks that I should have said a young good queen, when I said that a young queen was half the battle in fighting disease and securing surplus. He adds that he has seen many young queens that were not as good as old ones, yet Mr. Scholl must admit that age puts a handicap on a man as well as a queen, and the rule must remain in favor of the young queen.

For a number of years I have been watching the work of different colonies during the time of the yielding of nectar, to satisfy myself whether or not some colonies did not gather nectar from one source while others were working on another. I have decided that such is the case, and my discussion is based on the fact that I had

one colony this season that took a fancy to hoarhound nectar while others were working on the last of the orange. The one colony filled their combs with the dark hoarhound honey while the rest were gathering the lighter.

The season has advanced far enough to be able to figure a little on its production. If all sections of southern California are to be judged by my own locality I would say that production would be no greater than last season. Indeed, it seems probable that there will be much less than last season. With 25 per cent more colonies my production will be less than last season. Swarming has been the great drawback to heavy production. With those who gave constant care to their bees this trouble was greatly reduced; but the haphazard beekeeper this season found his crop passing in swarms, and, indeed, found many of his swarms passing over the hills and far away. More ideal weather than we have had for the past six weeks could not be asked for, but the flow has been slow for all that.

I have been making some experiments in connection with the discussion last spring as to bees drawing foundation on a certain amount of sugar syrup. In this experiment I have satisfied myself that it takes almost no stores to cause foundation to be drawn to one-third its cell depth. In this I mean to say that it is not and should not be termed comb-building. Removing a super from a strong colony at the close of the main honey-flow, while there was a slow flow at hand, and replacing it with ten full sheets of foundation, I found that the colony would draw the ten sheets to one-third the cell depth in two to three days. But there they stopped abruptly, and continued to draw the cells to the finish only as they were needed to store their honey. This led me to the conclusion that there was sufficient wax in medium brood foundation to draw the cells to one-third their length. To prove my conclusions I removed the foundation at the end of the fifth day, when work had apparently stopped, except on two combs in the center, and replaced the entire super with one containing another full set of foundation. In three days this was drawn to the same length as the first; but there, again, the rush work stopped, just as before.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.



TEXAS HONEY-CROP PROSPECTS

So far, southwest Texas reports a comparatively short crop of honey. The spring was quite unfavorable for good results, and the early flows were affected materially by the long-drawn-out cold spring weather. Huajilla and cat-claw did not give the expected yield, and in some localities were reported as having failed entirely. The yields of light honey seem very scattering over the southwest Texas territory, and of small yield. Much of this is extracted honey, as the flows were not favorable enough for comb honey. Unlike the usual condition in more favorable years, there is very little comb honey indeed offered at present.

There is hope that the mesquite will give a yield in many of the beekeeping localities where it abounds, since reports have been to the effect that it was budded quite well, and coming into bloom. Quite a number of beekeepers have expressed very little faith in a yield from this source on account of the fact that mesquite has not yielded them any honey crop for a number of years. This source has indeed been a very uncertain one for the past few years.

Throughout the central part of the state there has been considerable horsemint, and some honey is being obtained from that source. While the mesquite here too is just coming into bloom it is not of the usual profusion that obtains when there has been a yield of mesquite honey. The unfavorableness of the springtime has had its serious effect upon all kinds of vegetation and crops. Nearly everything is about a month delayed as compared with the average year. Since the "cotton belt" extends pretty well throughout all of central Texas, and since this plant comes into bloom in our immediate portion, about the middle of June, although it is a little later this year, the bees will be kept busy for some time. Cotton is one of the most certain yielders year after year, according to my experience, and I feel assured of the usual yield from it. Just now rains are very much needed throughout the greater part of this section. The cotton has not really suffered, but more abundant rains means a much more luxuriant growth of this plant. I have found that this is essential toward a good honey yield.

It is indeed difficult for a person to report for the honey-crop conditions for the

great Lone Star State without a great deal of assistance from beekeepers located in the widely different portions of the great state. For instance, I have just learned by reports from north Texas that the bees have just begun to swarm, and that one correspondent reports having hived four swarms a few days ago. This is well past the middle of June. The honey season is coming on in this part of Texas while the beekeepers of southwest Texas have long passed the swarming season and even the spring flow.

FIRE-PROOF BUILDINGS.

I have long dreamed of a fire-proof honey-house and work-shop. My present quarters have become too small, and it will soon be necessary to erect a larger building. It is my fondest hope that my dreams will all come true. There will be a basement for honey-storage purposes. This must be dry and well ventilated, and special heating apparatus will be provided so as to keep the honey from granulating in the combs.

The main reason for only partly sinking the basement below the ground line is to elevate the first floor about four feet, or about even with the beds of the wagons in use. I have found that this is quite an advantage in that it saves lots of lifting otherwise necessary. It is easier simply to set the articles to be loaded or unloaded directly from the wagon into the honey-house or vice versa.

Concrete is to be used for the main part of the construction, but in the upper stories corrugated iron will occupy the greater portion of both walls and roof. In fact, I feel like the inventor of a new wall for the building I have in view. The new idea is that of filling out the panels between the re-enforced concrete frame-work of the building, with solid walls of corrugated iron in such a way that both the ends of the upright sheets of the metal will be inserted in the concrete at the sill-line, at the joist-line above, and into the upright piers at each side of each panel. To brace these walls of corrugated panels, angle iron will be used at proper distances across their height, to which the metal will be fastened by means of wiring. The roof will be similarly fastened.

For ordinary purposes such walls as described would be good enough, but it is my intention to use metal lath and plaster on the inside of the building, applied by fastening the metal studding directly to the angle-iron bracings that hold the iron walls.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



REARING GOOD QUEENS

"I am anxious to improve my bees by rearing better queens for each of my colonies, so that better results in honey can be obtained. I noted last year that some of my colonies gave me nearly double the honey that others did. I am going to breed from the two that gave me the highest number of pounds, rearing queens from the one which gave me 179 sections of honey, and drones from the one that gave me 172 sections. Will you give me a few pointers?"

As the time for rearing good queens has arrived, the subject of rearing the best is one well worth thoughtful attention. But allow me to say that the difference in yield, which you observed among your colonies last year, might not come altogether from the work of the queen heading each colony. This I say so you need not be altogether disappointed, should the results of your determination to rear the best of queens turn out less perfect than your expectations led you to hope for.

There are few careful beekeepers but that have noticed the lack of uniformity of yield between their colonies. This may be from two or more reasons, or a combination of them. The colony giving the lesser amount may lack enough bees of the right age for gathering. The difference may lie in the nature of the bee itself. The thorough understanding of the right management of colonies to secure the best results has much to do with the yearly product in honey, and the best queens obtainable will never roll up a success where the management is faulty. A management that has no eye toward the date of blooming of the flowers in the locality will rarely give a satisfactory return for the time and labor expended, even with the best bees the world affords.

But let us look at the bee side. From talks with beekeepers during the past thirty years, I am led to think that the variation in yield averages nearly if not quite 50 per cent between the ten highest colonies and the ten lowest in the same apiary. I am also led to believe that this same proportion will hold good when applied to different apiaries in the same state. That the stock has much to do with this, there can be no question; and when apiarists fully realize the difference in stock, the question of breeding will receive

fully as much attention as is necessary for a successful management.

It is hardly necessary to argue why queens should be scientifically bred. "The survival of the fittest" will hardly develop a better bee than we have now, for she cares for nothing save the perpetuation of the species. Her aims are altogether different from those of man. How often have I heard apiarists say, "If each colony reached the high standard sometimes reached by a single colony, my honey crop would have been doubled." Careful breeding will do much toward this, and with it reduce in proportion the cost of management and equipment. This means greater profits.

There are many points to breed for, but the one most eagerly sought is greater honey production. But in breeding for profit we often run against traits that are almost a part of the bee itself; and to change that means nearly to make over the bee. For example, let us take the swarming impulse or the desire to increase. We can remove many of the conditions that tend to produce swarming, and by persistent breeding reduce this tendency to as low a point as possible. By rearing our queen-cells in colonies whose desire to supersede their queens is the uppermost thought, quite a gain can be made.

As the queen is fundamental to the colony we must have better queens. Cheaply reared queens are detrimental. Any plan is bad which keeps a queen just emerging up from one to eight days isolated from the bees in order that she may be cheaply reared and fertilized through a saving in nuclei. Virgin queens are cheap but of little value when thus kept away from the bees for five to eight days in a nucleus, so that they may be let loose as soon as a laying queen is sold, and become laying a day or two later. In this way a laying queen can be obtained every three or four days from every nucleus made by the queen-breeder.

As long as consumers insist on paying a low price for their stock, and queen-breeders advertise queens at \$50. a hundred, so long must they be content with the results of queens reared without proper care. There is too much tendency to see how many queens can be reared, rather than how many good queens. Would that there were more among our numbers like the questioner, who is "anxious to improve his bees by rearing better queens" right in his own apiary.

GENERAL CORRESPONDENCE

THE ALEXANDER-MILLER-FOWLS-TOWNSEND METHOD OF MAKING INCREASE AND KEEPING DOWN SWARMING

BY CHALON FOWLS

[In GLEANINGS for last year, page 979, was an article by Dr. C. C. Miller in reply to Mr. A. Swahn, in which he criticised some of Mr. Alexander's statements as made in the A B C and X Y Z of Bee Culture, on his method of increase. In this connection it is proper to state that the Alexander method of increase has called forth more favorable comment as well as adverse criticism than anything we ever published. Some statements made in the original article, if construed literally without poetic license, will not stand the test of experience, and to this Dr. Miller called attention in his article, page 980, 1914. Mr. J. G. Brown, formerly a member of our editorial staff, and now in Colorado, came back with a reply to Dr. Miller in our issue for Jan. 1, page 27. In this article Mr. Brown showed that he had used the Alexander method in his Colorado apiaries with considerable success. He poked a little fun at the doctor for slightly misquoting Mr. Alexander, and not allowing sufficient leeway for poetic license. Then he gave the names of several prominent Colorado beekeepers who, like himself, had used the method with a great deal of satisfaction. More discussion back and forth followed till finally an article was written by Miss Iona Fowls, who, with her sister and father, has been doing a large business in producing extracted honey for the bottling trade at Oberlin, Ohio; but instead of going into a defense of the Alexander method she told how she and her father had used a modification of the Alexander plan for keeping down swarming. Dr. Miller in his Straws, in the following issue, page 261, calls her to task for making a statement which in his experience in his locality does not prove true. Miss Fowls comes back at him in our issue for May 1, page 377, in which she says that Dr. Miller is talking about one thing and she another; and then in the last paragraph she gives Dr. Miller credit for giving the basic principle of the new method in our issue for Aug. 15, 1911. It will, therefore, be seen that in this new or old method of swarm control several have had a hand, and hence the heading of this article.]

Mr. Fowls, in the following article, in referring to the Townsend article in the *Review*, brings out one point that deserves especial emphasis right here; namely, that the ordinary shook-swarm methods take in bees of all ages, and for that reason the shake plan cannot be regarded as an unqualified success. In the first place, it does not follow nature; and in the second place it does not always work. In the Fowls modified Alexander plan he follows nature in that he makes his swarm have nothing but old bees. We believe that Mr. Fowls or Mr. Townsend or Dr. Miller (we would not now say who, but probably Mr. Fowls) has struck on a good point in making an artificial swarm that involves the principles of natural swarming.

This whole question is a most opportune and important one, and we hope that every reader of GLEANINGS will go through the discussion very carefully. If you have back volumes of GLEANINGS, and the last issue of the *Review*, you will do well to read all the articles.

We asked Mr. Fowls to repeat his method, notwithstanding it was nearly all given by his daughter in the references cited, because we believe it is one of the most important tricks of the trade that we have published in a decade. A good thing will bear repetition.

We have known Mr. Fowls for many years. He is a man who, notwithstanding his locality is a rather poor one, succeeds with his bees. He has sent his daughters through college. He has built him a beautiful home with all modern conveniences on one of the principal streets of Oberlin. He has plenty of home comforts, and the last we knew, money in the bank—all this and more from the bees, for he has no other business. Mr. Fowls is not, therefore, a merely theoretical writer, but one who makes money from his bees in a locality that is rather mediocre. If our readers can wade through this long introduction we hope they will take pains to read his article and those of his daughter very carefully. It might be too late to try out this method yet in some localities. If so, mark it, and save it for next year. Here it is.—Ed.]

In the June number of *The Beekeepers' Review* Editor Townsend describes a method of swarm control in outyards which he worked out last year, and which he calls "Our modified Alexander plan of swarm control." Readers of GLEANINGS will find the same plan given in an article by my daughter, page 242, March 15, also page 377, May 1.

But, to return to Mr. Townsend's article, I notice he gives as a reason for abandoning the shook-swarm plan, that there is "too much absconding of swarms" to be profitable, but gives no reason for such absconding. Now, I think that, in the system we have worked out and put in practice the last three years, we have eliminated the conditions which caused the absconding in the old "shook" method.

Let us consider for a moment the difference between a natural swarm and a "shook" swarm. A natural swarm is made up of the bees old enough to fly; but a shook swarm consists of bees of all ages—nurse-bees, cell-builders, all sorts. We have made

many "shook" swarms previous to 1912 (when we adopted the new plan), and I often thought the bees acted uneasy and dissatisfied, which I attributed to the presence of so many young bees. No doubt many of these were cell-builders primed with royal jelly, which would go right to building another batch of cells.

In 1911 we had a poor season here, the bees getting just enough honey to induce them to swarm, and we practiced "shook" swarming until we became convinced that the plan was wrong in principle for the aforesaid reasons.

About this time Dr. Miller answered an inquiry in GLEANINGS, Aug. 15, page 490, 1911, explaining that the presence of queen-cells above a comb-honey super would not have enough effect on the lower story to start swarming there. Probably I got the idea from this, and the next year (1912) we put it in practice, making over forty swarms by the new plan. The next year (1913) we had a bumper crop, and the bees directed their energies to storing, so we did not need

to make as many swarms; therefore I decided to wait another year before reporting, as I wanted to try the plan out thoroughly under different conditions; so last year we made about fifty swarms by this plan, and I don't remember that we had a single failure.

As before mentioned, our plan was given in detail in the March 15th number of GLEANINGS. I will here repeat it in brief.

Having found a colony with queen-cells, we begin our treatment. If the hive has a loose bottom so it (the hive) may be used as an upper story, so much the better. In this case, find the queen and place her on a comb containing but little brood and a few bees, and place in an empty hive, filling the rest of the hive with empty combs, and place on the stand after setting the hive of brood aside. Frames of foundation may be used, but are not as good. In case foundation is used I would take (in addition to the one comb with the queen and a little brood) two frames containing little or no brood from the hive of brood, first brushing off the bees so they will be with the brood. Now place a queen-excluder on the new brood-chamber and two or more extracting-supers of empty combs on top (we use shallow supers) with the hive of brood put on last. Fill any extra space with dummies and leave till the next visit in seven or eight days, when they are moved to a new stand. To insure that no young queens hatch during the time, at the time of making the change tear out the capped cells, leaving all those not capped. Of course the swarm in the lower hive will be made up of returning field bees *all old enough to fly*. It will be seen that this result is radically different than in the case with a shaken swarm with bees of all ages, and therein is the secret of its success, in my opinion.

In this connection I notice Mr. Townsend says, if he does not find the queen the first time looking them over he shakes off six frames of brood, leaving bees and queen below, and raising the brood above. It looks to me very inconsistent, for he is simply making a "shook" swarm, and I should say they would be just as likely to swarm as any "shook" swarm. In other words, it seems to me friend Townsend overlooks an important point right here; for although our methods are alike in so far as putting the brood and queen-cells in process of building beyond the intervening super, nevertheless he allows the young bees (many of which are cell-builders) to remain with the queen in some cases.

The first year I practiced this plan, there were some cases in which cells were built in the lower story; and as there often were a lot of young bees left sticking to the sides of the hive, or adhering to the two outside frames of honey sometimes left below, I believed those fellows did the work. As most of our hives have tight bottoms I was obliged to leave them on the stand, lifting the brood out to raise up. Therefore since that first year's experience I have taken more pains to get those fellows out of the lower story. Rather than leave a quantity of young bees in the hive below I would brush them out into the hive of brood to be put on top, as I feel that is much safer.

Again, referring to Mr. Townsend's article, although I attach more importance to eliminating the cell-builders below, still the rest of his management is the same as mine; and one expression of his I can heartily indorse in which he says of those bees in the top story, "They will finish up as nice a bunch of queen-cells as one wants to see."

Oberlin, Ohio.

THE "LONG IDEA" HIVE; SOME FURTHER DETAILS SUPPLEMENTING THE EDITOR'S ARTICLE ON THE SAME SUBJECT, FEB. 15

BY O. O. POPPLETON

While any one style of hives, like all other instruments used to obtain certain results, is not superior in all respects to other styles used for the same purposes, yet all may and probably do have some advantages and some disadvantages not possessed by other styles. The original Langstroth make of hives, almost identical with the present-day dovetailed hive, seems still to retain its ascendancy over other styles in ordinary use in the production of section honey; but in my own production of ex-

tracted honey it has not given me as good results or satisfaction as has the long single-story hive with deeper frames. This doesn't mean that the long hive has no faults the other does not possess, but that on the whole its advantages are greater than are its disadvantages.

I presume that I have had more practical experience with this form of hive than has any other beekeeper in this country if not in the world, having used it over forty years, while at the same time I have had



TAKING NOTES ON LARGE-SCALE BEEKEEPING

A group of students from the advanced entomology class, Ohio State University, inspecting the apiary of the A. I. Root Co., under the direction of Professor Hines. They spent a day looking over the equipment for honey-production and queen rearing. The young man at the extreme left is from South Africa; the one at the left of Professor Hines is from China.

large experience with tiered-up hives. One season I took 52,000 lbs. of honey from dovetailed hives, and have had from 10 to 75 of that form of hives in use in my apiaries during the past ten years or more. So my opportunities for thoroughly testing both forms of hives have been very full and complete.

The editor has ably described some of the features of the hive, so I will only amplify some of the points he mentioned, and suggest some others.

Of course, the first thing any one notices on first seeing the hive is its larger size or seemingly larger size. The difference in size between one of these hives, if it were set up on end, and a three-story dovetailed hive is very small indeed, and nothing less than three stories is suitable for the best success in getting extracted honey. In fact, the hive is very similar to what a three-story hive would be if laid down on side with frames changed in position.

It looks as though such a large hive would be much more difficult to move around to different locations in the apiary. Of course, compared to a single-story ten-frame hive they would be heavier; but I can handle

them easier, and with less labor, than I can even a two-story hive. I never move any hive, large or small, any distance except on a wheelbarrow or cart. I can pick up one of my large hives and put it on a wheelbarrow much easier than I can a tiered-up one that contains the same amount of honey. This is because the cleats on which the cover rests run all around and near the top of the hive instead of handholes in the center of hives; also because there is no top story to prevent the hive being close to one, so it can be lifted straighter up. This will be fully appreciated by any one who compares the ease of lifting anything heavy close to the body, or well away from it.

Again, a tall hive is much more liable to tip over forward, if the wheelbarrow happens to strike even a small obstruction, damaging the combs, raising the temper of the bees, and bringing out more or less temper from the owner. The men who helped me load on to boats always objected strongly to handling the tiered-up hives because of the extra labor and risk.

One of the principal advantages of the hive is the ease with which it can be examined. Simply remove the hive cover, move

a couple of the slats that are loosely laid over the mortises in the top-bars, and one can see at a glance the general condition of the colony—that is, how full of bees and honey. If appearances indicate that something may not be just right, with a common pocket-knife and a couple of motions one can push back enough frames so he can look into the center of the actual brood-nest to learn the real conditions. A single motion with both hands can then shove all frames to their places; replace the slats and hive-cover, and all is done, without doing any real lifting except the hive-cover.

What I have found to be a very valuable feature of this hive is that it enables one to keep so much closer watch of conditions in the hive. Whenever I extract or go through the hive for any other purpose, I can see without using either extra time or labor in doing so the exact condition of the entire colony—not guess at it, but know it. I find this is a very important point.

I very strongly advise against using any kind of shallow frame this way. I have advised all inquirers to test the method first with the Jumbo size of frames. The more compact a colony can be kept, the better; and frames that are only two inches shallower than is the Jumbo size of frames have to be spread out too much for best results. Another thing, if one wishes at any time to use the regular size of hives and frames, these Jumbo frames and combs can be easily changed to standard size with no material loss.

I have never been a believer in the use of queen-excluders except when raising queens. I have a very decided objection to confining queens to a small part of any kind of hive. I don't believe any one making a specialty of queen-raising would be pleased with these hives. If I were to do any more queen-raising I think I would use one similar in principle to Prof. Gamallo's illustrated on page 147, only with three sections instead of two. I have raised many queens for my own use by what is essentially the Doolittle method, but not so conveniently as the same work could have been done by using tiered-up hives.

The kind of bees to use in these hives is an important factor in securing best results.

Some kinds of bees will raise large quantities of brood during a heavy honey-flow. The result is much less honey during the flow, and thousands more of bees which do not reach the age for best field work until after the flow is over with. Other kinds of bees raise brood equally well during a very light flow of honey; but as soon as a heavy flow sets in it drops excessive brood-rearing

and devotes nearly all its energies to honey-storing. In this last-named character the Italians seem to excel all other races very greatly. This seems to be the reason for their great superiority over other kinds of bees, especially in the production of extracted honey. This trait of the Italians seems to be of more importance when using these large single-story hives than in the use of tiered-up hives.

Contrary to the experience of a majority of beekeepers I have not found the dark strains of Italians to give as satisfactory results as do the very light strains. I don't mean those bred for color mainly, but those bred for both color and quality. I used to select my breeding-queens from among those giving the brightest-colored bees that were also the best honey-gatherers.

One of the real objections to these hives was well stated by the editor; viz., the extra expense of the wide boards required to make them. In Iowa, some thirty or forty years ago, I made my hives myself with the aid of a small circular-saw outfit without using any wide boards at all; but these were chaff hives; and, so far as I have ever seen, they are by far the handiest and most convenient chaff hives in existence. From what I hear I judge these hives were made on much the same principle as are those lately recommended and described by Mr. Hand, but more convenient to manipulate. My brother-in-law, Mr. Milo George, of Bowling Green, Ohio, and Mr. H. S. Rouse, of New Hampton, Iowa, are now using this style of hive. When I was with my children in the state of Washington last summer we devised between us a plan of building these hives from the rough timber by the aid of small sawing-machinery. If time and use prove that we have struck on anything that may be valuable to others, I will gladly give a description after full experience.

A person's temperament also has much to do with his choosing the right method of doing any kind of work. Some men can and do get larger net incomes from a small number of acres devoted to gardening than other successful farmers do from many scores or hundreds of acres. If these same men would reverse their work, both would be unsuccessful. These large single-story hives allow of much more intensive methods than do tiered-up hives; and many persons would make a comparative failure with one and not with the other. With others the reverse would be true.

All that is written about these hives is in reference to producing extracted and not section honey.

Stuart, Fla.

AN INTRUDING COLONY OF HONEYBEES

BY EDWARD F. BIGELOW

Recently a swarm of honeybees came out and alighted on a tree. I put them in a Pearl Agnes hive, but it was evidently too small for them. I added a second super story, making three stories in all. Then the

opposite that of the tree on which the first colony had settled. I placed a hive under the cluster, shook it off, and most of the bees started to enter the hive, but, as usual, a large number remained flying. Then some



A pair of swarms.

hive was taken from under the tree and placed on a box in the apiary.

The next forenoon another swarm came out and alighted on a fence in a direction

one gave the alarming cry, "Another swarm is coming out!" Sure enough, the air was filled with bees that were pouring out of the Pearl Agnes hive, which they were deserting, probably because it was too small or I had not put it in a place shady enough. This Pearl Agnes colony moved off over the other swarm, now about half in the hive. The flying bees of both colonies seemed to become confused; and the second colony, instead of clustering, went directly into the hive, thus filling that hive to overflowing.

There seemed to be a little "scrap" among them, not only in that afternoon but all the next day

after the hive had been removed to the stand, the result being many dead bees. But now, in the words of the old-fashioned novel, they are living happily ever after.

Arcadia, Sound Beach, Ct.

HONEY WITHOUT INCREASE

BY G. W. JOICE

I have been successful in both the home and out yards with the following method of securing a crop of honey every year without making any increase unless I wish it. The system is not of my own invention, but here it is just as I use it.

During feeding, the bees are all at the home yard. I take them to the outyard about May 20, and then put on the honey-board and second full-depth story. I use a Boardman feeder for spring stimulation and feed every evening about sunset a half

to a full pint of sugar syrup, a one-to-one mixture, lukewarm. As the bees come out of the cellar about the first week of April, and the white clover begins to bloom the first week in June, I have rousing colonies by that time. Preparations for swarming begin about May 15 to 20, or practically as early as settled warm weather begins. When I find eight or more frames containing brood in a ten-frame hive I remove the parent hive and place a hive containing combs or foundation on the old stand; select



The Pearl Agnes hive and Pearl Agnes, after whom the hive was named. —Photo by Edward F. Bigelow.

a frame of brood containing the queen and young larvæ from the parent hive, clipping her at the time, and placing her on the comb of brood. I put the queen with the one frame of brood in the middle of the new hive on the old stand; place a queen-excluding honey-board on the new hive (I use the wood and 7-wire board), and the old hive on this after destroying all the queen-cells.

In seven or eight days I look the upper hive through for queen-cells and destroy them. If I wish some comb honey I place a super between the two hives when white clover begins to bloom, and a week or ten days later I put it on top of both hives. The reason for first putting it between the hives is to get the bees to draw out the sections, and the reason for putting them on top is to keep them white. After the brood is all hatched from the upper hive the bees will store it full of honey, which may be taken with the extractor and the hive put away to use the following year. In this way the queen is furnished plenty of room to lay, the bees are given plenty of storage room and an abundance of brood, which, by stimulative feeding, is here in time to take advantage of the white-clover flow. I find

that I gain about 40 lbs. of extracted honey per colony, and secure about 201 lbs. more fancy comb honey per colony than where I do not follow this system, besides eliminating 98 per cent of the swarming nuisance.

WINTERING A SURPLUS OF QUEENS.

A couple of years ago I had a few short articles in *GLEANINGS* in regard to wintering a surplus of laying queens in one cluster without division-boards or queen-excluders. I have this very day two queens that laid eggs together last season working in harmony this season. I feel that there is no secret to it that I may keep from my fellow-beemen. But there is this: I sometimes fail, and cannot understand why, when at other times I succeed fully under like circumstances, conditions, and manipulations. I have wintered successfully as many as fourteen laying queens (all of the same season's rearing) in one colony. These colonies are always wintered in the cellar. I wish other readers would try the experiment and report.

The gross receipts from my two yards are about \$10 per colony. I also farm 80 acres of land. My bees are certainly great revenue-getters.

Edon, Ohio.



A western honey-distributing company's plant.

PRODUCTION OF HONEY IN THE UNITED STATES; THE NEED OF GREATER SELLING FACILITIES

BY E. R. ROOT

The last United States census shows that, outside of the cities and towns, at least \$10,000,000 worth of honey is produced annually; but I am convinced, from the evidence in hand, that the actual amount is at least twice that, or \$20,000,000. I have run across dozens and dozens of large honey-producers located up in the mountains or out on the plains, away from assessors, who stated that they had never reported the number of their colonies nor the amount of honey produced. At one of the big conventions of the country, the question was asked how many had furnished Uncle Sam a statement of the number of their bees and of their crops. The great majority had made no such statement, and, what was more, had never been asked for one. So, taking it all in all, it is probable that \$25,000,000 would not buy all the honey that is produced annually in the United States.

The increase in the number of specialists, and the decrease in the number of farmer

beekeepers on account of foul brood is resulting in more and more honey being produced.

The facilities for producing honey in the United States have been increasing year by year. While the number of beekeepers in the United States is larger than formerly, there are more persons who make the keeping of bees a specialty. There are not a few who own and operate from 1000 to 2000 and even 3000 colonies. The large producers, as a rule, are located west of the Mississippi, and particularly in the irrigated regions where alfalfa and sweet clover are grown.

So large has become the general amount produced that it brings up the problem of insufficient selling facilities. The National Beekeepers' Association touched on this question at its last session at Denver. The secretary, Mr. G. W. Williams, of Redkey, Ind., has repeatedly called attention to the fact that the selling facilities should be in-

creased to take care of this vast production. The F. W. Muth Co. and C. H. W. Weber, both of Cincinnati; the Colorado Honey-producers' Association, of Denver, Col.; the Superior Honey Co., of Ogden and Idaho Falls, Ida.; and the A. I. Root Co., if you please, are among those who have been seeking to find a market for the honey-producers of the United States. Last year, in fact, the A. I. Root Co. spent in the neighborhood of \$25,000 in newspaper and magazine advertising. All of these companies have been sending out traveling men to get honey introduced in the main avenues of trade.

THE SUPERIOR HONEY COMPANY.

One of the companies in the West that has been doing much in promoting the sale of honey is the Superior Honey Co., of Ogden, Utah, and Idaho Falls, Idaho. It is not only interested in the honey-selling business but is a large producer of honey. It owns and operates something like 3000 colonies of bees in some very fine bee territory in Utah and Idaho. This company is likewise interested in the sale of beekeepers' supplies, and also manufactures comb foundation. It is also doing a large business in buying honey, both comb and extracted. It is buying tin cans by the carload, and shipping honey all over the United States, both wholesale and retail.

The engraving shown herewith represents one of their warehouses in Ogden, Utah;

and the other, almost a duplicate of it, is located at Idaho Falls. Both buildings are of substantial brick, and the company is well organized to do a large business in buying and selling honey and in the sale of supplies for the beekeeper.

If more of the large producers who are interested in the promotion of the sale of honey, especially the introduction of it to the large avenues of trade, would do as the Superior Honey Co. is doing, there would be a better and stronger demand for honey. Already honey is now on sale in Pullman cars, at fancy restaurants, first-class groceries, and drugstores, as it was never sold before. Some day the beekeepers of the country will recognize the services a few of these concerns are doing in the line of promoting the sale of honey in lines that hitherto have been undeveloped.

I had the pleasure of visiting both of the Superior Honey Company's warehouses. I found hustling business men at both places, and evidences of a large business being carried on. I doubt very much whether the beekeepers of the Rocky Mountain districts appreciate what this company is doing in the way of extending the sale of honey. It is doing an immense business. The Ogden warehouse is in charge of the senior Redfield. The Idaho Falls branch is in charge of his brother. A brother-in-law is superintendent of the warehouses and of the manufacturing end of the business.

THE SIMMINS METHOD OF QUEEN INTRODUCTION

BY J. H. TODD

We have read a good deal lately in GLEANINGS about A. C. Miller's direct method of introduction with smoke; and from the varying results achieved it seems there are several essential details which must be observed to secure success. I have not personally tried it, as I nearly always use Simmins' direct method, with which I have never had a failure, and which I believe, all things considered, to be the safest and simplest method of all, especially for a beginner. I must confess I am disappointed at the remarks made on it in the A B C and X Y Z of Bee Culture. When I got the new edition, the first thing I referred to was this, only to find the same short, discouraging allusion to this valuable and infallible method of queen introduction.

May I make special allusion to three parts of this reference?

1. "It is not one (method of introduction) that we would recommend in any event to a beginner."

This I have always been at a loss to understand. I should have thought the best method for a beginner is the one where there is the best manipulation and least chance of making a mistake—in other words, the simplest. Now, what can be simpler than the Simmins method? It is of all methods the one that can be performed by rule-of-the-thumb, regardless of every condition of colony and weather, except only that the colony must be queenless, no matter for how short or how long a time. Queen-cells may be present or not—only queenlessness is necessary.

2. "And the hive closed up for 48 hours." I don't know how this came to be inserted, as I am sure Mr. Simmins did not intend the entrance to be closed; and from the footnote you clearly mean closing the entrance. I find nothing in his book about closing the entrance. He certainly gives a caution against examining the hive for 48 hours, but that is all.

I think closing the entrance is a mistake. I never have done it, and am sure it is not part of the Simmins method.

3. Then, again, in the A B C you say, "This will work safely in many cases; but we are sure there are some conditions where it does not." And now at once, as a comparison to the above, let me quote from Mr. Simmins' book, 1904 edition, page 289, an extract he gives from Mr. F. Cheshire's work on bees:

"Following up the question, I tried many dozens of experiments, and found that by Mr. Simmins' method it was quite easy, and not only to introduce, but to get one queen to lay in half a dozen distinct hives in a single week. . . . My trials have, I believe, embraced almost every supposable difficulty and variation in season and in the condition of the stocks, and show the system to be practically perfect. . . . Direct introduction as taught by Mr. Simmins has saved me queens, time, and anxiety, and I feel pleasure in expressing my indebtedness."

From the above it appears Mr. Cheshire's unqualified praise of the system is based on exhaustive experiments. Can you tell us whether the above rather discouraging quotation from the A B C is similarly based on practice, or is it merely supposition or opinion of the authors? It reads as though it were merely an opinion.

Here are the directions in the author's words:

"The three things of importance to be observed are so follows:

"1. Keep the queen quite alone for not less than 30 minutes.

"2. She is to be without food meanwhile,

"3, and to be allowed to run down from the top of the frames, after darkness has set in, by lamplight. It is also important that the same receptacle be not used twice over for holding the queen during the thirty minutes' probation without being first scalded or otherwise cleansed. Of course, a metal cage is easily made clean, though there is no objection to the cheap 'Safety' match-boxes so commonly in use, as there is nothing obnoxious about this kind. . . . Caution: Make no examination after inserting the queen, . . . until 48 hours have expired.

"The above meets all requirements, whether the colony has been long or only a short time queenless, if it has brood or not, or queen-cells in any stage of development. It is also applicable to any season of the year."

In conclusion I will add three hints from my own experience:

1. Have a good lamp so as to be sure the

queen actually goes down between two frames.

2. Take the smoker lighted just to keep back the bees that come out when the mat is lifted.

3. Make a rule of running the queen between two central combs in case the bees are not clustering at the corners of the hives, and only just uncover the ends of the frames so as to give room to run the queen down comfortably; don't pull all the mat off and make a disturbance. Do it all as quietly as possible. Use very little smoke, just to prevent the bees coming out and getting crushed when you adjust the mat again. Work as if you were in a room with a sleeping baby who must not be awakened.

Blenheim, N. Z., March 20.

[Your whole plea in favor of the Simmins method of introducing is based on a misunderstanding of an unfortunate wording which, we are frank to admit, might be construed to mean *closing the entrance of the hive*. It certainly was not so meant by us. What we intended to convey was that the hive should be closed up, meaning putting on the cover and not opening it up nor disturbing again for 48 hours. You have the idea that we intended the *entrance* should be closed. We are not sure that Mr. Miller received the same impression. If he had he would have called attention to the error. This language has been used in two different editions of the A B C and X Y Z of Bee Culture, and yet no one hitherto has read it as you do, unless it was, perhaps, A. C. Miller, as implied in his footnote. We will see that there is no ambiguity in our next edition.

You object to the word of caution wherein we state that the plan "is not one that we would recommend in the case of a valuable queen, or in any event to a beginner." Perhaps as time goes on we may modify our opinion. We are always open to conviction. But the sentence in question was not based on theory nor prejudice, as you surmise. We referred the matter at the time to the experienced men in our yards who had tried it faithfully. It would work with them, and we used it to a considerable extent; but we have lost queens by it, and yet we followed Mr. Simmins' directions to the letter; nor did we close the entrance, as you imply, for 48 hours. Further experience with the method might modify the change in the language, although it has stood thus through two different editions.

You have, perhaps, overlooked the fact that we do a business of introducing queens, day in and day out, on a larger scale, per-

laps, than any other concern in the world. We have tested all methods of introducing, and are constantly testing them; and every now and then we revert back to the Simmins fasting method; but it is an unvarnished fact that we seem to be drifting back to the caging method, which is by no means perfect.

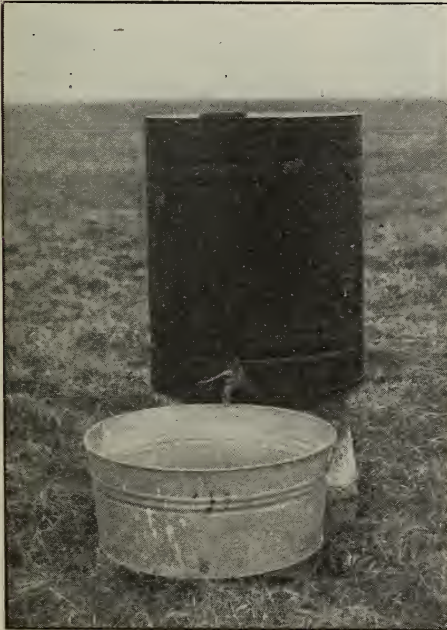
The A B C and X Y Z of Bee Culture was written primarily for beginners. Since

the first edition it has outgrown its swaddling-clothes, and is now a volume for the professional as well as for the beginner. It is one of our policies in this work to recommend nothing to the beginner that has not stood the most thorough test in our own yards or in the yards of some successful honey-producers who have had a larger experience than ourselves, and are, therefore, more competent to judge.—Ed.]

SERVING THE DRINKS WITH SAFETY

BY B. C. AUTEN

Here is a watering device which I believe answers all requirements better than any other I have seen. It will furnish an abundant supply of water for a large force of bees, keeps the water pure and fresh, gives no chance for drowning the bees, and requires attention only once in several days.



punched in the side a half-inch or an inch from the bottom. The tub should be placed in position, and water be allowed to run in until it reaches the level of the outlet-hole. Then sand should be spread in the bottom and leveled up with the water until its surface is slightly above that of the water. The



Furnishes an abundant supply of water for a large force of bees.

The reservoir is one of the tanks sold by the oil companies for the storage of gasoline, capacity sixty gallons, fitted with a brass faucet and with a four-inch screw cap in the top. The reservoir is filled with water, and the faucet adjusted to a drip faster or slower, according to the number of bees.

The other part of the apparatus is a common galvanized-iron tub, with a hole

bees then stand dry-shod on the sand, and reach their tongues down into it for the water. The drip from the tank keeps up the supply, and the outlet-hole prevents the water reaching the surface of the sand.

All watering-devices using cobs, grass, cork dust, sawdust, or any other organic material, will get foul in a very few days; but with the sand, as used above, the water will never get foul.

Carthage, Mo.

FOUNDATION ECONOMY

BY C. V. CONOVER

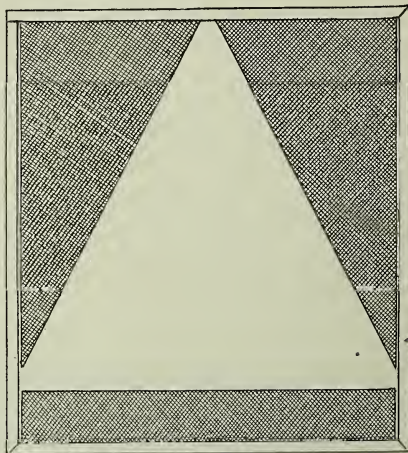
During each of the last two seasons I used a number of supers of sections fitted with foundation cut and used as illustrated. In every case the results were equal in every respect to those obtained by using nearly full sheets of foundation and bottom starters as advocated by Dr. C. C. Miller. My plan seems to be about the one way of placing foundation in sections that is not shown or described in the A B C and X Y Z of Bee Culture.

This arrangement of foundation produced finished sections in which the comb was straight and was attached on all four sides without corner holes. There was never any trouble with buckling of foundation due to sections or foundation being out of square, or from expansion when placed on the hive, as is often the case when full or nearly full sheets are used. The foundation is not so liable to fall from accidental rough handling before it reaches the bees, as the weight on the top where it is fastened is reduced a half, and the weight remaining is concentrated nearer the line of attachment. But the advantage over Dr. Miller's plan lay in the saving of foundation which was effected. With $4\frac{1}{4} \times 4\frac{3}{4}$ sections this saving amounts to about 45 per cent of the foundation. With $4\frac{1}{4} \times 4\frac{1}{4}$ sections it would be a trifle less, as the bottom starter occupies a relatively larger portion of the space in this shape of section.

The one disadvantage was the trouble of cutting and fastening the greater number of pieces of foundation. The cutting was not a serious matter; and as I fastened all foundation with melted wax, the fixing of the extra piece of the top starter merely took a little more time in placing the pieces, but offered no further obstacle. I imagine that,

with a little ingenuity, the hot plate fasteners could be made to handle these pieces with the expenditure of a little more time on each.

I figured that the saving effected by this means, over the use of bottom starters and full top starters reaching within $\frac{1}{4}$ in. of



the bottom starter, amounted to $\frac{1}{4}$ cent per section when using extra-thin super foundation at 70 cts. per lb., and a little more than that when using thin super at 60 cts. per pound. This is not a great amount in itself, and often would be offset by the extra time necessary; but for any one who is long on time and short on money it offers an excellent opportunity to make the one take the place of the other without any sacrifice of results.

Flint, Mich.

A SIMPLE WATERING ARRANGEMENT

BY D. E. LHOMMEDIEU

When setting bees out of winter quarters I was desirous of getting them started at a watering-place close by, so they would not go to the neighbor's well. I started them by setting out wheat flour before they gathered natural pollen. They went wild on the flour. By placing the water-dishes close by they commenced to carry water too. The bees seemed to take the flour so fast I finally substituted some reddog—finely ground shorts for stock-feeding purposes. They

soon quit working, and commenced with the regular wheat flour as fast as ever.

To return to the watering, I tried putting in about a heaping teaspoonful of salt to 12 or 15 quarts of water. In some dishes I put no salt. The bees practically left the dishes that were not salted.

To devise a watering-place for 10 cts., buy a candy-pail; put in two teaspoonfuls of salt; fill with water, and cover the top with corn cobs. In a few days, when they

become water-soaked, replace with a new set; and by the time they are ready to throw out, the old ones are dry to replace them. Change the water occasionally. Fill up the pail mornings before they get to work.

With a good-sized yard you may need two or three pails scattered among the hives. I never see a bee around my pump now, only a few rods from the hives.

Colo, Iowa.

AN OBSERVATORY HIVE 100 FEET FROM THE GROUND

BY L. ESENHOWER

[One hundred feet above the sidewalk in a section of a city in Pennsylvania stands the "house-apiary" of Mr. Esenhower. The hives are situated inside a tank house on the roof of a high building. A few years ago Mr. Esenhower averaged 60 pounds per colony. Further particulars regarding the apiary were given in GLEANINGS for March 1, 1914.—Ed.]

The interesting feature of my house-apiary is the observatory hive. The combs are arranged vertically, one above the other, in such a shape as to present the largest surface to view.

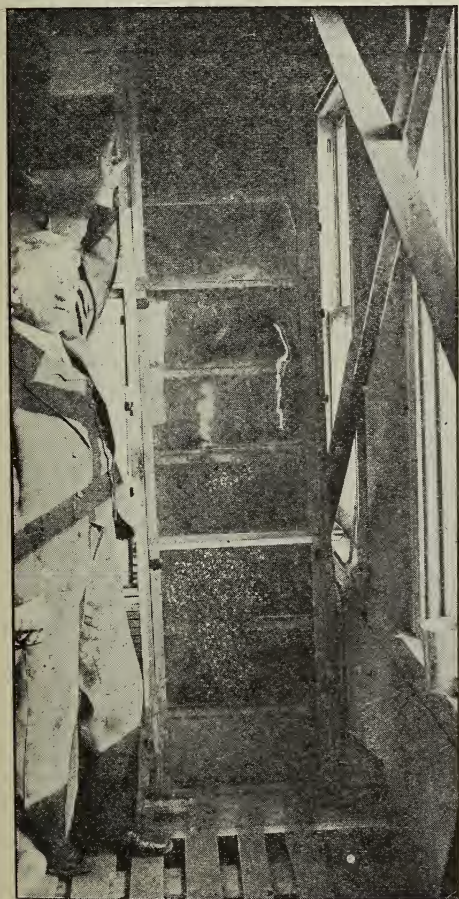
While I have not gone into any scientific

observation, this would be an excellent opportunity for so doing. Lack of time prevents me making this observation.

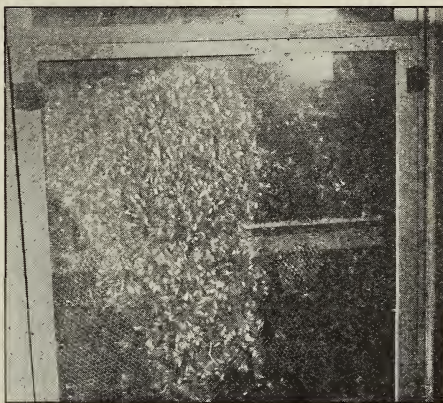
The small picture shows the cluster as it appears in winter.

I think the cluster is located where it is on account of the feeder being so near. There have been many far more interesting features developed in this hive of the honeybee which would require extended writing to put them all on paper.

From the commercial standpoint it is not a success. As a novelty, it answers admirable purposes. It has been viewed by many visitors who have expressed their astonishment and admiration at so novel a contrivance.



The combs are arranged vertically.



The winter cluster.

Last year the bees stored only two combs above the brood. I intend to try a new experiment this coming season, and will be able to report later on.

We did not find brood on more than three combs, and this was for a short time only, probably not exceeding four weeks—that in the height of the season.

Reading, Pa.

SOME UNSATISFACTORY EXPERIENCE IN CURING FOUL BROOD BY THE BALDRIDGE PLAN

BY JOSEPH J. ANDERSON

Last season when I had a very heavy percentage of American foul brood among my colonies in three yards I decided to shake every colony in these yards (more than three hundred), as I hoped to get rid of the disease at one stroke. This I did at the beginning of the honey-flow. I got a fine crop of first-class honey, and about two tons of beautiful wax.

The greatest care was used in handling combs and in rendering the wax. The melting was all done during a heavy honey-flow. A few of the combs were filled with honey, this was extracted, and strong formaldehyde used in disinfecting the extractor-tank and tools. I got a splendid lot of fine new combs drawn out.

However, I made only one shaking, putting the bees on full sheets of foundation. With some of the colonies, perhaps a third, I used the modified Baldrige plan, as described in one of the June issues of *GLEANINGS* of last year. I used funnel-shaped tin tubes about 8 inches long, with the end opening only large enough to permit one bee to pass out at a time. I set the diseased hive at right angles to the new one, with the end of the tube about two inches above the entrance, according to the orthodox method. But the bees defied all rules, and passed into the hive as well as out through the tube.

In my first inspection this spring I discovered twenty-six cases among those treated last summer.

I was disposed to lay my troubles to the Baldrige plan, which I now denominate the tin-horn method, since the one yard where I did not use this plan showed no recurrence.

We have had rains, clouds, and wind the last two weeks, so that no work could be done among the bees. Three days ago, May 16, we got a few hours of sunshine, and I started to inspect the second time. I examined four and found the infection in each one—only a cell or two—but it was there sure enough. Perhaps when I get to the yard where I did not use the Baldrige plan I shall find the infection, although at the first inspection I passed all as clean.

The query I am putting to myself is this: Are my troubles due to the use of the Baldrige plan or to the single shake or both? Perhaps had I shaken twice my colonies would have been clear of the infection. My experience with foul brood teaches that,

while one knows a colony is diseased when he sees the symptoms, he can never be absolutely certain that a colony is not infected, since a single cell containing the disease may be overlooked, no matter how careful the inspection. A second inspection may reveal the trouble as in the case of the four colonies.

"Where am I?" is the big question now. If I am anywhere, how shall I proceed? I may and will treat the diseased colonies, bringing them in to the home yard where I have a cellar and other equipment for handling the infected combs.

But when I do this, am I certain no more infection exists among the rest? Shall I proceed to make my increase artificially as hitherto, thus incidentally eliminating almost absolutely all swarming? Or shall I let the bees swarm to avoid the chance of spreading disease? How much danger is there of a swarm from an infected colony developing foul brood when hived on full sheets of foundation? Of one thing I am certain, I shall do no more fooling with the Baldrige plan, modified or otherwise.

There is a strong feeling among many prominent beemen that the only efficient way of treating foul brood is to burn up brood, hive and all. But when I reflect that these men do not get rid of foul brood, but have to burn every year, I am led to believe that shaking properly done is just as effectual, and certainly far less expensive.

It seems that foul brood is with us to stay, and that it can never be completely eradicated.

A second inspection has shown thirteen cases recurring among the bees (75 colonies) above referred to, where I did not use the Baldrige plan, and 100 cases among those 160 colonies where I did use it somewhat. A mile from my two yards is an apiary where I know some foul brood has existed. Have my bees carried the disease from there after being shaken?

Salem, Idaho.

[Last winter we spent a couple of days with Mr. J. J. Anderson; and during that time we looked over two of his outyards that had been placed in winter quarters. Pictures of these will be given in September or October. It is sufficient to state that Mr. Anderson is one of the most successful comb-honey producers in the United States. The criticism cannot be made that he did not follow directions for treating foul

brood carefully, for he is precision itself. His last paragraph suggests the cause of the recurrence of the disease among his bees where he says, "A mile from my two yards is an apiary where I know foul brood has existed. Have my bees carried the disease from there after being shaken?"

In answer to the last sentence we say, probably, yes. We do not believe the recurrence of foul brood in your yards was due to the fact that there was only one shaking instead of two, or that the Baldrige plan was unsafe, although if one uses it he takes a little risk; but if we had much disease in a yard we would use it; for to destroy good brood in a strong colony is a big waste. By the Baldrige plan this is all saved, except what is actually dead or diseased.

To sum up, it is possible that some of this recurrence was due to the Baldrige plan; but we venture the assertion that 99 per cent of it, if not 100, came from the yard a mile away. If that other yard contained any old combs or hives from which the bees had died the previous winter, the

Anderson bees would be almost sure to find them; and if there was infection in them they would carry it to their own hives. It is a well-known fact that the first colonies to die in winter are those that had foul brood the previous fall. If, therefore, there were dead colonies in that yard a mile away, there is a strong probability that they contained diseased honey.

We would suggest that Mr. Anderson either buy out that yard or get his neighbor to treat it.

Years ago, when we had foul brood extensively in our home apiary, we shook only once on foundation; and we never, in all the hundred or so of colonies shaken, have had a recurrence. Dr. E. F. Phillips, of the Department of Agriculture, has told us that one shaking is ordinarily sufficient; and, if we are correct, he advises only one shaking.

We shall be glad to hear from our foul-brood inspectors—especially N. E. France, and any of the old-time inspectors in New York. If two shakings are necessary to make it sure to cure American foul brood, we are willing to be shown.—ED.]

CARLOADS OF BEES MOVING NORTHWARD TO MEDINA

Some New Tricks in Loading Hives into a Car, whereby nearly 400 Colonies can be put into a 36-foot Car

BY E. R. ROOT

The first two carloads of bees have arrived—one from Virginia, and one from Texas. Announcements concerning the arrival of these cars appear in our issue for June 1, page 431, and June 15, page 521. Still another one will come from Virginia some time in July or August.

The aim was to get the two first cars here before the opening of clover. The first car from Virginia arrived in ample time. The second car did not arrive until June 20 on account of unfavorable weather in Texas. Mr. Harry Davenport, one of our yard men, came with both cars. The distance was considerably greater on the second car, and on account of this we arranged to put in ten barrels of water, or enough to last practically the entire trip. Giving the bees water at intervals when the weather is very warm, in the form of a spray, is very essential. A little force pump is used to throw the water on the screens where the bees cluster tightly on the wire cloth; and where the temperature seems to be high enough to be dangerous to the bees or brood a little cooling spray not only gives them a drink, but evaporation immediately lowers

the temperature. The bees will drop back from the wire cloth and go on to the combs where they should be. As soon as they get hot and roar again they are given another light spray. It can be imagined that the attendant, if the weather is very hot, has all he can do to keep the bees cool, and experience shows that he is busy both night and day. As we have before stated, traveling with a carload of bees is no Pullman job. The gas from the locomotive in going through tunnels is unpleasant to the attendant and the cinders fall on the wire-cloth screens, although we have less of this accumulation by the new method of loading, which I shall now proceed to describe.

For the convenience of the reader we will reproduce the two cuts as they appear on page 57, Jan. 15, as seen in Figs. 1 and 2. Fig. 3 shows the piles of hives and crates after they are loaded in the car. One of the crates (see Fig. 1) is placed on the car bottom, as shown in Fig. 2. As this picture was taken when the bees were moved in October, the ordinary box car was employed; but when moving the bees north, a cattle-car was used, but the method of loading is

practically the same. First a long crate is laid on the car floor, just long enough to reach up to the car door and to the end of the car. The hives are then piled on top of this crate in pairs, the back and front of the hives pointing to the back and front of the car. This leaves the rows of hives parallel to the track. As soon as the first tier of



Fig. 1.—Crating on platform ready to load.

hives is placed on the crate, another crate is put on top, and then another tier of hives, then another crate, and so on clear up to the top of the car. Four tiers like this are placed in an ordinary car. When so loaded one can get about 350 colonies in a 36-foot car. Mr. J. E. Marchant, formerly in our employ, and now with the J. E. Marchant Bee and Honey Co., says he can load 400 colonies, or, more exactly, over 200 two-story colonies, in a 36-foot car, and use only half the number of crates. He finds that the two-story hives go through in as good condition as the single-story, and the more colonies, or bees, rather, that one can get into the car, the cheaper the relative freight. The minimum weight on the 36-foot car is 14,000 lbs. Unless one can make up a shipment that will equal that minimum he is compelled to pay more freight proportionally per colony, as will be readily seen. Mr. Marchant's plan is to load the two-story colonies clear along on one side without any reference to the door. This gives room for

extra colonies. Of course a doorway must be provided on the other side for entrance and egress. Ordinarily we would consider it more difficult to ship two-story than single-story, as the ventilation in the latter case would be a little better. But if one thoroughly understands his job, and the weather conditions are not too severe, he may succeed nicely with the two-story plan.

Fig. 3 shows how our first Virginia car of bees came to Medina. There is a long crate, as shown at 1 and 2; then a tier of hives; then another crate. These are piled up in alternation until the requisite height is secured. The camera shows a view looking into the doorway, and how the crate serves to let in air between each tier of hives. It will be readily seen that, by making a hive two-story, and then splitting it up at the end of the journey into two, one can save in lumber and crating, and at the same time

increase the space for bees.

In the foreground, Fig. 3, will be seen a 2 x 4 with notches cut in the side. We used, as far as possible, old pieces in former cars loaded on the old plan. On that plan we made a series of shelves on which several tiers of hives were placed. We had

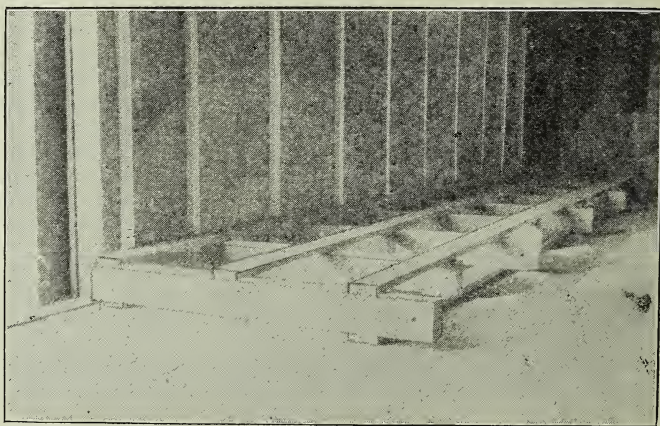


Fig. 2.—One section in the car ready for the hives.

supposed it might be necessary to remove a single colony from its place in the car, and give it individual treatment, or place it where it could get more air. Theoretically this was correct; but in practice it is not practicable to disturb a single colony *en route*. By piling up the hives and crating

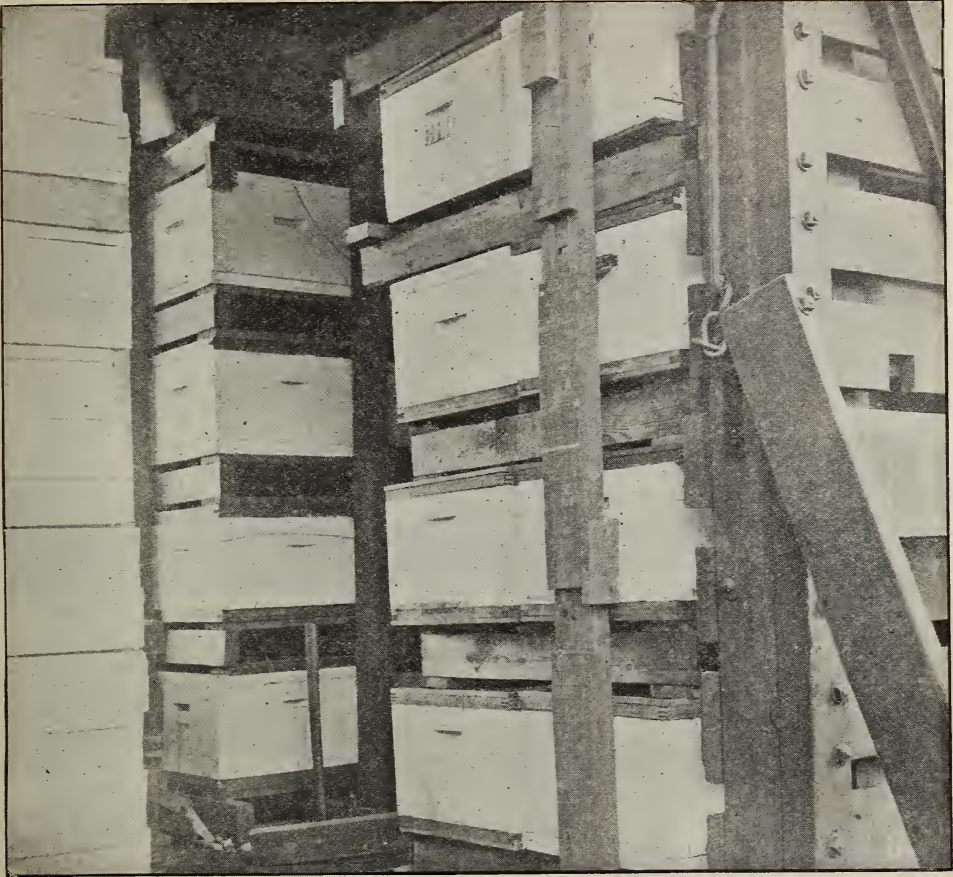


Fig. 3.—Interior of first car of bees from Virginia, May 21, 1915, just before the work of unloading began.

like cordwood, the several tiers are locked together, and all that is necessary is to brace the individual piles from each other, and yet at the same time provide a passage for the attendant so he can water the bees by running his spray nozzle to each tier of hives.

The 2 x 4's put up on edge make it possible for the attendant to run his hand between the tiers; and if he can feel the hot breath of the bees coming up between the colonies, and he hears considerable roaring, he proceeds to give a spray. If the water runs clear down through the colony it does no particular harm, although too much dousing will kill the young brood.

Mr. Marchant, who has just brought up two carloads of bees from Apalachicola, likes this new method of piling the hives and crating like cordwood as here shown, and considers it far superior to the old way of putting up shelving that had to be strong

enough to hold a whole tier of hives, independently of the tier below. By the new method of loading, one tier of hives supports the tier above.

Moving bees by the carload is getting to be a real science, and it is now possible to take bees from the North to the South and from the South to the North without the loss of any bees or brood, providing the weather is not too hot.* The great obstacle in the way is the freight, cost of crating, and screens, as well as the transportation of attendant. So far the railroad companies do not put bees in a class where there will be any very large number of shipments from the North to the South. Moreover, they compel the shipper to pay regular railroad fare for the attendant. For all other kinds of live stock, such as horses, sheep, and

* When the last carload from Texas started it was 110 in the shade. The excessive heat and the frequent spraying to keep down the temperature killed about 20 per cent of the brood.



Fig. 4.—Unloading first car of bees from Virginia. Truck body placed on old touring car.

cattle, no charge is made for the transportation of the man in charge. By the same token, the attendant who goes with bees should not be compelled to pay regular railroad fare in addition to the freight. Unless the beekeepers of the country can get better rates, there will probably be but few car-load shipments of bees. With lower freight and the elimination of railroad fare going and coming, migratory beekeeping would be practiced to a considerable extent; for then it would be possible for the large producers to catch an early crop of honey in the South, and move northward and catch another crop; and in some rare cases, perhaps he could make three jumps; but it is not possible under existing conditions. Marked copies of this article will be sent to the leading railroad companies, and unless they will make some liberal concessions they will probably not get much more business, as we cannot stand these excessive rates. At present it costs on the average about \$2.00 per colony to take it south, and \$2.00 to move it back. One must be sure of a good crop before he undertakes to pay \$4.00 per colony to catch an extra honey-flow in the South as well as in the North. It is seldom that a crop of honey will equal that figure per colony; and were it not for the chance of making increase in the South, and a further chance of selling the bees after arriving north, the movement of bees in car lots would never be attempted, and probably will not be continued unless more

equitable rates are secured. We have already moved, up to date, nine cars; and while this is not the biggest record, perhaps we have done enough of it to believe we know something about the cost and difficulties.

Well, we will suppose the car of bees has arrived at its destination. It is very important that complete arrangements be made in advance. As soon as the bees can be unloaded and placed on their stands for a flight, the better. If the car arrives late in the afternoon, every hive should be placed on its stand, or a temporary stand, at least, before nightfall. This can be easily done by the use of one or more automobile trucks. There should be a force of strong men. Two in the car to pass out the colonies, two at each truck, and one or two men to help unload and place on their stands, would help materially. We unloaded our two last cars of bees, with the help of two trucks, in about an hour each. After the hives were all in place, and after nightfall, the entrance-screens were removed, and the bees allowed to come out. We find it better to release the bees at night rather than during the day. This can be easily done by means of a strong screwdriver and an electric pocket-light to show the exact location of the tacks that secure the entrance-screen.

In this connection it is well to explain that the bottom screen has a slot in one end of the frame. This slot is left open after the bottom screens are put on the

hives. Just before loading, these slots are closed with wire cloth. The bees should not be confined one minute longer than is necessary. If possible, bees should be loaded late in the afternoon, and, better still, after they have stopped flying. The entrance-screens are nailed just before the bees are

loaded into the car. If the bees are flying the closing will have to be deferred till night.

Fig. 4 shows one of the automobile trucks being loaded. The regular covers and bottoms should be placed first, then next the colonies themselves.

A ROTARY SECTION CLEANER

BY A. E. SHORE

A machine which will enable one to clean as many cases of honey as four men can clean by hand is that illustrated. I have been using the machine in cleaning comb honey for the Superior Honey Co., at Idaho Falls.

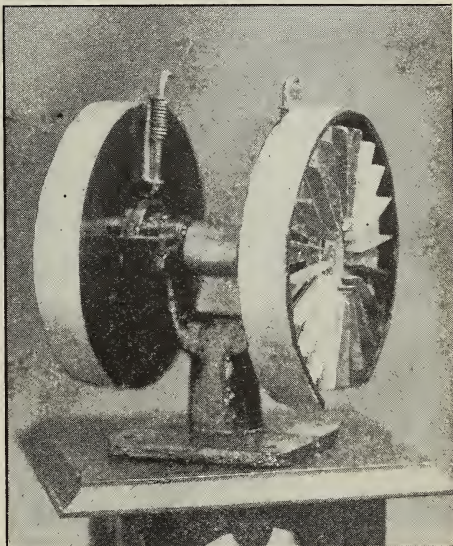
I sorted the honey, cleaned and cased it, and could get through about as many cases as four others could do by hand.

The illustration will show what a small power is necessary to run the little machine. Any one can soon learn to use it.

Charles R. Dana, of Ogden, cleaned ten cases an hour with this machine.

Ogden, Utah.

[While we were in Ogden last winter we had the pleasure of meeting Mr. Shore and seeing his machine which he here describes. He sent it to Medina, but we had some little trouble with it on account of its breaking the sections. But Mr. F. W. Redfield said he had seen the machine in use, and that it had been doing very satisfactory work. It has the advantage over sandpaper in that it does not clog up; and if properly used it will doubtless do good work.—ED.]



Not an electric fan, but a section cleaner.

A QUEEN-REARING FAILURE WITH A BRIGHT SIDE

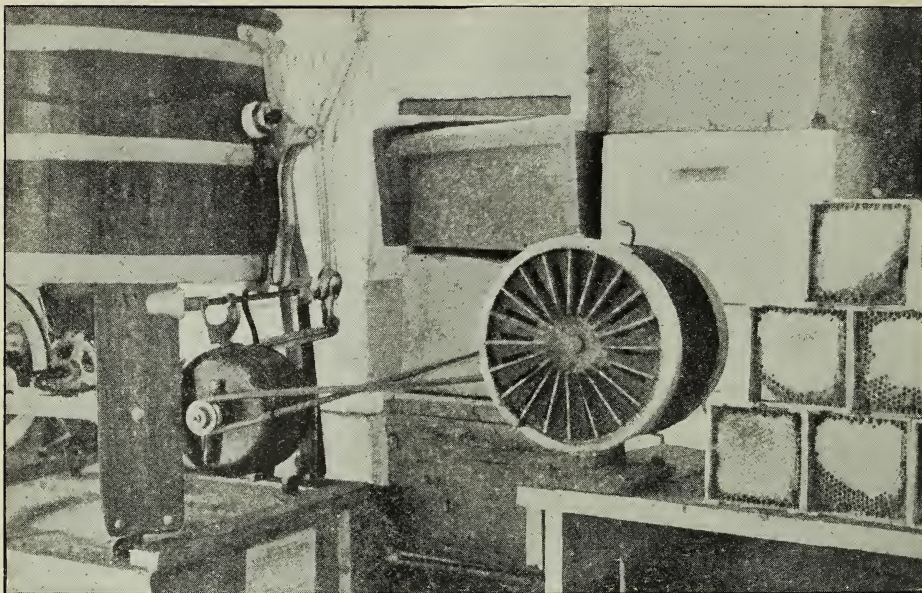
BY RUTH C. GIFFORD

My first attempt at queen-rearing was made last summer. Before starting I read everything available on the subject. Most of the methods were too complex. I wanted some good queens and also the colonies at work in supers during the clover flow. Finally I decided to rear the queens near the end of the flow; but even then I did not want to use any more colonies than were absolutely necessary.

When the time came for starting the cells, a strong colony was made broodless and queenless, as recommended in one method given in the A B C of Bee Culture. Frames containing honey were left in the hive, and the colony was allowed to stand a couple of

hours. Then it was given a frame containing eggs and young larvæ from the high-record colony. The comb in this frame was shaved back almost to the midrib on both sides. Several days later the other frames were returned, together with an extra hive of bees and brood. Everything seemed to go nicely. They built fourteen good-looking queen-cells.

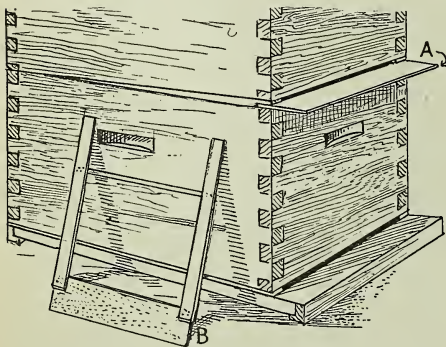
The nuclei for the cells were placed in three eight-frame hives, two of which were divided into three and the other into two equal compartments. As wire screening had been tacked on the bottoms of these hives they could be placed directly over three colonies whose supers had been removed.



Little power is necessary to drive the wheel.

After the nuclei and original colony had been supplied with cells, two fine ones were left.

In caring for these a different plan was tried. Wire screening was laid on two more colonies. On that were placed upper entrances (shown in the diagram), and on each of these one regular hive-body. Then it was the work of only a few moments to fix two good nuclei with plenty of honey. Preparing these last two hives did not require nearly as much work as the others, and no holes had to be bored for entrances.



An upper entrance that is convenient and easily arranged.

The nuclei were watched carefully, and all appeared to have equal chances for rearing good queens. None of them were both-

ered by robbers. After a reasonable time they were examined. Both the two nuclei which were last made had good queens. One of the others had a kind of queen, but she hadn't laid when she was six weeks old, and so I snipped off her head. The other nuclei had no queen.

I honestly think this is an unusually bad showing for the nuclei in the hives which were divided into two and three compartments. But I'm not going to bother with them again when better results with far less work can be obtained by using one nucleus to a hive with an upper entrance. Two or three of these nucleus hives can be piled on one colony, because their entrances need not be in a straight line.

The upper entrance mentioned above is certainly convenient. It is always ready for use, and the only thing the operator has to do is to stuff the entrance proper with a clean white rag until it is the size desired. Robbers have no chance to get in the cracks at the sides of the hive. The strip of tin fastened to the sloping sticks holds them in place. Without it they shoot apart or get crooked when a hive is set on them. The wood used in the alighting-board is three-sixteenths of an inch thick. The two side pieces are both from a $1 \times \frac{5}{8} \times 16$ -inch strip ripped diagonally. Perhaps every one is using these entrances and has just neglected to mention them because they are so simple.

North East, Md.

NOTES FROM GERMANY

BY J. A. HEBERLE

The teacher, W. Honzejek, reported in the *Deutsche Imker aus Boehmen* an interesting observation of bees moving eggs. He says the various instances of bees moving eggs, as reported in the contemporary bee-literature, were never convincing to him. That bees with a laying queen take eggs from one comb and carry it to another, no experienced beekeeper will believe. The following instances will prove that a queenless colony which received a fertile queen in a cage really did move eggs.

"The middle of July, 1913, in the presence of the owner, the merchant Jos. Fleischer, of Reichenberg, I examined an after-swarm that had been there before, and found it queenless. Mr. Ed Sieber, our vice-president, was also present, and gave us a young fertile queen which I took from an after-swarm and gave it to this queenless colony the same day about 4 P. M., using a sticking-cage. [These round cages are stuck into the comb with the queen, giving her a comb area of $1\frac{1}{4}$ to $1\frac{1}{2}$ inches in diameter. To liberate the queen the cage must be pulled out or the bees have to gnaw deep into the comb.]

"The queenless colony was on four large combs. I pulled the fourth comb back enough to get room for a nice comb I had selected from the comb-chest, caged the queen on it, and put it in the prepared space. Immediately after I had shoved up the comb that I had pulled back to make room for the comb with the queen on it, the colony made that peculiar humming which all practical beekeepers know means joy, and began to cover the cage. The field bees returning apparently recognized the change, delayed before the entrance, and paid honor to the royal presence by fanning, etc.

"At 2 P. M. the next day I found that the space between the comb on which the queen had been caged was thickly covered with bees, and I had to give a little smoke to get at the cage to free the queen. The liberated queen was moving very slowly, and it took her some time to get to the other side of the comb.

"I was greatly surprised to find on the side of the comb on which the queen had been imprisoned, fresh eggs. About 300 of them were placed in a circle around the cage. The cells that had been covered by the cage were free from eggs."

Mr. Honzejek says, "In this peculiar case we may assume that the fertile queen dropped the eggs, and these fell on the bottom

whence the bees gathered them up; or it is possible that the bees caught the eggs at the meshes and placed them around the cage.

"The supposition that the eggs were in the comb when it was with the queen given to the colony, or that they were from laying workers or from an overlooked queen, is in this case impossible.

The comb in question had not been in use for quite a while, and could have contained only dried-up eggs which the bees would have cleaned out as worthless. Had the eggs been from an overlooked queen or laying worker the introduced queen would have been killed; but this introduced queen was joyfully received and lovingly cared for.

"Somewhat surprising is it that the queen in the cage, although very fertile, did not deposit any eggs in the cells that were at her disposal. Did her instinct warn her to deposit eggs in a place where they could not be cared for by the bees, and where her progeny would have to perish? Possibly. Regardless of the secrets that the bees discreetly keep to themselves and thereby puzzle their keepers I affirm upon the foregoing carefully sifted material that the bees took the eggs dropped by the imprisoned queen and placed them in a circle around the cage."

DIET FOR BEES.

It is necessary for the well-being of our bees, as well as for mankind, that the food contain in sufficient quantity all the elements of which the body is built up, because they are gradually but continually changing through waste and repair, and must be repaired by a proper diet.

We know that bees winter well on cane sugar—as far as we can see—however, we cannot see very far. We conclude that sugar is good for winter food, and that may be right. As long as the bees are practically resting there is little waste and wear and tear of the bee organism.

Sugar is a carbohydrate containing only carbon, hydrogen, and oxygen. When the bees have to work as nurses or in the field nitrogenous and mineral matter must be supplied or they soon will be exhausted and succumb from deficient nutrition.

Dr. Langer-Gratz has shown that the bees furnish from their body the albumen in honey, and the nurse-bees the nitrogenous food for the young larvæ. Dr. U. Kramer, in an interesting article, "The Physiological Importance of Feeding Sugar," has shown

that, during the inversion of sugar that had been fed to the bees, albumen has been added.

Admitting the foregoing, we must conclude that nursing, inverting cane sugar in nectar, or in sugar feeding, drains the body of albumen, and that this loss must be replaced or the bees will be weakened and die prematurely. Therefore pollen is necessary to replace the nitrogenous substance the body is losing when brood-rearing is going on. It shows that sugar feeding for winter stores should be done so early in the fall that the bees can still find pollen to supply the urgent demand of the body. At the same time they get good winter stores, remain hardy, better able to resist disease, etc. Sugar is but a substitute for honey—never as good as good honey.

If the body of the bee is weakened during fall and winter from the lack of nitrogenous and mineral matter in their diet they will be less vigorous, and in spring dwindle more rapidly than they otherwise would. This is a serious impediment for development in spring. It is also doubtful whether bees whose bodies have been weakened by a deficient diet can, as nurses, raise a vigorous, long-lived progeny, since the larval food is a secretion of the nurse-bee. A weakened body succumbs more readily to the inclemency of the weather and to disease germs. The breeder and the keeper must unite to produce a healthy, vigorous, long-lived race of bees.

SOMETHING ABOUT POLLEN.

The *Bienenwäter* published some interesting notes about pollen. It is gathered by the bees for its content of albumen and fat. It is a flower-like powder, differing much in color, size, and form. The size of a pollen-grain in the forget-me-not has a diameter of 0.0025 to 0.0034 millimeter; from the snakeweed, 0.010 to 0.014; lilac, 0.024 to .34; pansy, 0.062 to 0.071; cucumber, 0.20 to 0.23; melons, 0.20 to 0.24.

The flowers furnish a great amount of pollen. According to Darwin, a single dandelion has 243,000 pollen grains; one hazel-blossom has 4,000,000 grains, and one stalk of corn is estimated to furnish 50,000,000 pollen grains.

A. V. Planta has made analysis of pollen. That from the hazel showed nitrogenous matter 30.21 per cent; fettsaeuren, 4.2 per cent; pollen from the Scotch fir showed nitrogenous matter 16.6 per cent; fettsaeuren, 10.36 per cent.

A single bee takes for one load, according to Kirehner, 100,000 pollen-grains, and needs from two to eighteen minutes to complete a load.

It is very important that the bees visit usually but one kind of blossoms while gathering pollen. This habit enables them to cross-pollinate most effectually the plants. This is of great importance in the economy of nature, and is especially valuable to the fruit-grower.

Kempton, Bavaria, Germany.

BEES PREFERRING MOTH-EATEN COMBS

BY E. G. LADD

My experience has been that bees looking for a location invariably select hives that have been used. For years I have put out decoy hives, and have succeeded in inducing some to select these decoys for a future home; but never yet have I had bees select a new and unused hive, although placed in good positions.

Moth-eaten combs left in old hives are often good decoys, presumably because of the scent emanating from them; but those bees choosing them have always cut out the old bad combs, building new. As for myself, I cut out all poor combs, leaving old brood-frames and sometimes good, clean, old combs. If old frames are not numerous enough by placing them together, filling the rest of the hive with new has also worked well. This is Wednesday; and on looking into a swarm that came last Saturday, and took possession of a hive that had four good

clean combs in and six new frames, I found eight full frames with brood in five, and some frames full of eggs to the edge of the comb. A super now adorns that hive, the bees immediately taking possession. These "come-to-us" bees show up for days before they finally come to stay, and sometimes in considerable quantities; and by looking at these decoy hives I can tell where to expect a new swarm. When they do come they come straight, sometimes apparently dropping down from the clouds—no settling, but with a steady rush for the entrance. They hive themselves.

I have had some experience that points to the scent of bees lasting for some time—if not the scent, I should like some one to explain it otherwise. I have found if I can get the first of my swarms to alight in a good place, ninety per cent and sometimes all the following swarms will choose the

same place. This year has been a good one in that respect. The first swarm settled on a dwarf maple. Every one since has settled on the same maple, and nearly all on the same limb. Last year the first swarm alighted on a maple 40 feet from the ground. All subsequent swarms made for the same spot until I cut it down. Now, how long can they scent the place, when the same place is chosen covering a period of weeks, and often many days apart?

My neighbor has had a similar experience, and not a pleasant one. Six times his bees have settled on the chimney of his house, and each has been successfully scraped off and secured 30 feet from the ground. This same chimney was taken possession of by a fine swarm two years ago. They filled the space so that the furnace fire would not draw. Combs were started close to the top, and went down six feet. They were cut loose, and the bees finally killed. Query—can the bees of to-day smell the old leavings in that chimney that has been used for

months as a flue? Coal was burned, and surely the scent has been eradicated. Will the wiseacres please answer?

White clover is strictly to the front just now, and a steady roar all day tells a good story. Is there any music as pleasant as the roar of the bee when honey is flooding? We have the music, and dance to the tune of well-filled supers and plenty more in sight.

Portland, Oregon.

[While it is a well-recognized fact that swarms alight on limbs where previous swarms have clustered, it seems impossible to believe that the scent could cling to a chimney that had been in use that length of time; and yet the fact that six different swarms have occupied it is hard to explain except for scent. If we did not absolutely know the unquestioned veracity of the correspondent, we might think he was telling us a "fish story," especially when he adds that the last time the swarm actually impaired the draft of the chimney.—Ed.]

HOOSIER HITS

BY S. H. BURTON

"Brown rot" would be a good name to give American foul brood.

"It's an ill wind that blows nobody good." The continual rains are bringing out the white clover wonderfully; but the bees get to work on it only between showers.

D. W. Howell, page 448, June 1, I am afraid would not think so much of a shallow brood-frame "because it does not allow so much room for stores" if he had my present conditions confronting him. Colonies in full-depth Hoffman ten-frame hives are in a starving condition. All surplus stores have been used up in brood-rearing, and a recent examination at my outyards showed the bees on perfectly dry combs, and so weakened they were unable to fly. A hive as deep as the old log gums comes nearer being the ideal size.

Has anybody observed that the clipping of queens causes a plurality of eggs in each cell? Recently I clipped a very fine golden, and now find six and eight eggs in each cell, with the bees trying to supersede her. A queen uses her wings in backing into and getting out of the cell, and any mutilation in this way is bound to have its evil effects.

J. E. Crane, page 483, June 1, should keep hammering away at this great fact about the variation in bees, not only as to their superior honey-gathering qualities but their power to resist disease. Undoubtedly

nature has enabled some races or colonies to resist foul brood effectively, else there would be great danger of the race becoming extinct. We have not only found some colonies far superior to others in gathering honey, but have found in some yards every colony save one infected with foul brood. We beekeepers are not up with stock-breeders and plant-pathologists in our profession.

Washington, Ind.

[Clipping would not affect a queen's laying. Plurality of eggs in a cell is usually explained by a lack of cell room or old age in the queen. Sometimes a young queen will start laying in this way, and later lay one egg in a cell.—Ed.]

A MID-SUMMER SONG

BY GRACE ALLEN

The mid-summer day is drunk with heat,
And the earth is a-swoon in the sun;
But the bees—oh the bees from the dawning till night
Go winging their way through an ocean of light.
Straight on to the blossoms that bloom out of sight,
And the wine of their vision is won.

The warm west wind with the perfumed breath
Sinks heavily down, and is done;
But the bees are a-quiver with life as with fire!
O soul! dreaming soul of mine, why should we tire?
We too have a vision, a distant desire—
We too have the sun.

HOW SHOULD BEES, PARTICULARLY QUEEN BEES, BE SHIPPED IN POUND PACKAGES?

BY T. DWIGHT WHITMAN

Different shippers have their own ways of preparing packages of bees for shipment.

Having to make a fresh start this spring, I decided to try buying bees by the pound to avoid danger of disease. I used no old combs, and only the best of the old frames, which were dipped in boiling lye and thoroughly washed afterward in several changes of water. All hive-bodies were burned out.

The frames, after being dried in the sun, were wired, and full sheets of foundation inserted. Bees were ordered from two places in California, each distant three days by rail.

One shipper (A) used the standard Root shipping-cage with water-bottle, the queens coming loose in the boxes with the other bees. The other shipper (B) used home-made boxes with solid sides and ends with top and bottom of screen wire, a small trough for candy feed. The queen lay in a mailing-cage inside the box, and no water was supplied.

The first shipment from breeder A reached me April 5 (about ten days after date promised), at which time the plum, cherry, currant, pears, apples, and Scotch broom were in bloom. In this shipment there were eight one-pound packages (Root cages) with four untested queens loose in four marked boxes.

Colonies 1 and 2 were made of two pounds of bees with untested queens run into double hive as described in GLEANINGS, June 15, 1915, page 497. In each compartment of this double hive were three full frames of foundation and a division-board feeder with two cups of sugar and two of hot water.

The bees were shaken in front of this hive at 10 A. M., April 5. At noon the next day the bees had made good progress in drawing out the foundation; and the queen in No. 1 was laying. The queen in No. 2, however, did not lay until the next day. The weather conditions were as follows: April 5, very fine; 6, dull with rain at 6 P. M.; 7, showers; 8, fine; 9, very fine.

The bees in all of the boxes had consumed all of the feed, and in some of the cages the water-bottles were empty. There was quite a number of dead bees in some of the cages, those having water but no feed showing the most dead bees.

The shipment from breeder B arrived April 10. These were in home-made boxes with the queens confined in Benton cages

inside the boxes. Most of them had been released by the bees. Their supply of feed was almost used up, no water was supplied, and, to my surprise, there were very few dead bees.

These bees were put in the same kind of hive as the others. Colony No. 5 was made of two pounds of bees with an untested queen that was still in Benton cage on arrival. The hive contained the same number of frames of foundation and feeder with the same amount of feed as used before.

Weather conditions: April 10, fine and warm; 11, showers; 12, early fine, followed with showers; 13, fine, windy; 14—19, very fine.

The bees promptly drew out the foundation. Five days later, as the queen was not laying I put in a frame of drawn comb with eggs and found, on the 21st, that queen-cells had started, but the queen was not laying, and so I broke up the hive.

Colony No. 6 was made of two pounds of bees with untested queen from breeder B; but in this case she had been released from the Benton cage, while en route, by the bees. They were run in with the queen in the other side of the double hive on three full frames of foundation with division-board feeder. They were given the same feed as the others at the same time, April 10.

This queen began to lay three days later, but scattered her eggs badly, and queen-cells were started on May 5, twenty-three days later.

Other packages from breeder A gave results as follows: Nos. 3, 4, 8, 9, and 10 showed eggs in two days. Of those from breeder B, colony No. 7 showed eggs in four days but had queen-cells twenty-four days later. No. 17 had no eggs after fifteen days.

All were put in the same kind of hives on the same kind of foundation and were given the same feed and treatment.

From the results I draw the following conclusions: While water is not essential to bees in pound packages it is a benefit. Caging or confining a laying queen injures her. Shippers of bees in pound packages make a mistake where they confine the queen in Benton cages for the bees to release on the way. The better practice is to give the queen all the liberty possible and have her loose with the bees from the start. This is easily arranged by the shipper.

Tacoma, Wash.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

These after-swarms always reminds a feller of the things he had thought he was goin' to say, but forgot, when he made his first public speech.

Hybrids Ahead of Italians; Bisulphide of Carbon, etc.

Mr. Root:—Ants are easily vanquished by bisulphide of carbon. If in a hole in the ground, pour a little in the hole, and cover over tight. If in a nest, punch hole down in the center with cane or cart-stake, and pour, say, $\frac{1}{2}$ teacupful down it; and then if you want a little fun, wait 4 or 5 minutes; stand off as far as you can, and throw a lighted match on to it and watch your ants and uncles scatter. Be careful and not let any fire get near the bisulphide. If any of the brotherhood are troubled with woodchucks, stop up all the holes but one, then saturate a small ball of rags with bisulphide, and shove down the hole as far as possible, and stop the hole tight. Mr. Chuck won't eat any more beans.

Weevil in grain or beans can be destroyed by putting some in vessels not much too large for them, and putting some bisulphide in a saucer on top and covering the vessel tight. The fumes are heavy and go clear to the bottom.

I have one hive of hybrids that have one super of 28 sections filled and capped, and another about one-half full—say about 40 lbs. in all, while the Italians—five stands of them—have practically nothing—same treatment to all. How about it?

Wethersfield, Ct., May 18. A. N. GRISWOLD.

[My friend, while it is true that hybrids occasionally outstrip full-blooded Italians, it is by no means

the rule. You may have noticed, perhaps, that in poultry the first cross frequently excels in the number of eggs and in weight either of the races from which the cross came. The principal trouble with the remedy for ants is that we cannot always find the nest readily. This is often the case in Florida and other southern localities.—A. I. R.]

How to Fill Cans

I have bought honey where the 60-lb. cans were filled as full as they could be. Whether they were weighed or not I don't know; but I suspect they were filled by some one who thought they must be filled to hold 60 lbs. Cans may vary, so it was necessary to fill them full to get in 60 lbs.

If a can is filled full, and the honey granulates, and is later melted, it will expand in melting and run over, and waste about 2 lbs. of honey, besides making a smeared mess of the outside of the can.

Some beekeepers put 58 lbs. in a can.

I wish the journals would put in their grading-rule column this sign:

Leave room in cans for honey to expand if reliquified. This would save some one lots of trouble and make better-satisfied customers.

Camillus, N. Y., June 7.

IRVING KINYON.

"Bob Fitzsimmons" as a Honeybee.

While observing one day the coming and going of the inhabitants of a certain hive I noticed two bees fighting fiercely, lying on their sides facing each other, and tightly clenched. Each bee was striving with all its might and skill to reach a vital part of its antagonist with its sting and desperately guarding its own body from his adversary's weapon.

Suddenly the clinch was broken, and one bee strolled nonchalantly a couple of inches toward the door of its home, while the other, which was evidently a robber bee, and as yet uninjured, righted itself squarely upon its feet. Instantly, with a tigerish spring, its enemy was upon it. An instant touch, and it was away. In less than twenty seconds the would-be burglar had paid the penalty of its crimes.

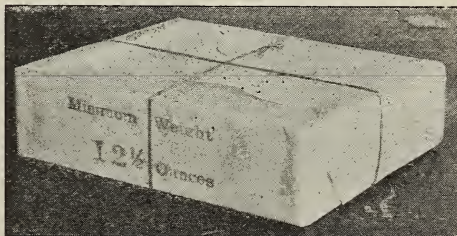
Off guard, thinking the fight was over, it was an easy victim. Talking about ring-generalship, could Bob beat that?

Gloversville, N. Y.

F. J. SHEPARD.

One More Way to Stamp Net Weight.

For branding sections with the minimum weight I use a common stamp composed of rubber letters and figures set in a hand-block similar to that ordinarily used for a rubber stamp.



The letters and figures show plainly through transparent paper. We sell these marked sections of honey from the store every day, and have very little complaint.

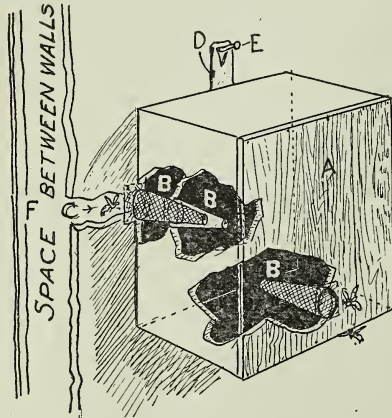
Bradshaw, Neb.

C. D. PALMER.

Removing Bees From Walls.

In all the articles I have read about removing bees from trees and house walls the plan was to save the colony. This is all right from the beekeeper's view, but in case of a house, the dwellers therein want to get rid of the bees at once. They do not care to wait a month, that the beekeeper may have a new colony. This was my experience.

To expedite matters I devised the following plan to relieve a friend of annoyance. I took a box of about a cubic foot capacity, and cut holes in two sides, each about three inches in diameter. Over both these I put cone bee-escapes with the apex inside. I then made a cone to go on the building and over the principal entrance. This cone was made to fit snugly into one of the cones in the box.



Trapping them going and coming. A, box; B, B, cone bee-escapes. D, hanger. E, nail to hang box on. F, space between outer and inner wall.

I hunted out all the holes by which the bees came and went, and left the main one, plugging the others with cotton scraps wet with a mixture of creolinum and petroleum. When the bees were going and coming from the one entrance I put on the cone, then hung the box so that the two cones would engage, and fastened it there.

All the bees that were afield would come and go in at one cone entrance, and the bees coming from the house would enter the box by the other; and if the box were left there any length of time the bees, of course, would perish. But one could have two boxes and change, thus saving the bees while keeping them from annoying the people in the house.

Buck Grove, Ia.

DR. A. F. BONNEY.

Every Hive its Own Record-book

Why so much fuss and worry about keeping hive-records with brickbats, dials, books, etc.

My hives face east and are painted white. In the spring of 1913, on going over them, cleaning up, I made notations with a common No. 2 pencil on the north side, writing from top to bottom such notes as "416-4 st. s. s.," meaning that on the fourth month, 16th day, this colony had 4 frames of brood and was strong, but had scant stores. If I found an unclipped queen I knew she was of 1912, so drove a tack about half way in on the east side of the hive, and, of course, clipped her.

On my next round I may have made, next to my first record, such a note as "53-8 c," meaning

that on the fifth month, third day, I found eight frames of brood and queen-cells started; and so on through the season, making such notes as I considered necessary.

In the spring of 1914 I used the west side, and this year the south side, changing my tacks as new queens were reared. While my notes of 1913 are dim, they are still legible.

I make my notes of a size that can be read a distance of five or six feet, so that in looking over the yard I am able to see at a glance those hives which need attention. Also the notes are arranged in neat order so as not to look bad. Try it, brother beekeeper, and I am sure you will take to it.

Springfield, Mo.

E. T. BOND.

Some Physical Effects of Beestings.

While you are discussing beestings and their cures, let me give you a little of my experience. While living in Illinois, my wife's mother was stung near the temple. She broke out all over in large blotches, and was quite sick. My wife wrapped her in a wet sheet, and in about half an hour she was all right again. There were no bad effects.

I went out to Denver one morning to look after some bees. As I rode up to the house I found quite a number of people, and heard the cry of a little child. They told me she took a stick, sat down in front of a hive, and was whipping the bees. She was badly stung on the face and hands, and the people were using whisky externally and internally, I think, with the child screaming all the time. It was a very bad case, and the child might have died. There was no medical help near, nor an automobile in those days to take her to a doctor. I told them to wrap her up in a wet sheet wrung out in tepid water as quickly as they could, and bundle her up in blankets.

In twenty minutes she was laughing and entirely free of pain.

A lady friend of ours who lived in North Denver had a swarm of bees that alighted in a tree. She climbed the tree, and, without veil or gloves, cut off the limb, but spilled so many of the bees that she was badly stung on the face and hands.

She hung to her job, however, and got the bees down and hived. She then went to bed and was quite sick. She had been taking treatment for rheumatism but the ailment disappeared after she recovered from the stings.

Denver, Col.

J. L. PEABODY.

How Not to Introduce Brood Foundation.

As a novice I made one blunder against which I think I was not warned by anything I have read. My last frame of brood foundation was put in next to the division board, and now I find the bees have clustered on only one side of it to draw it out, and their weight has drawn the foundation sidewise, bagging out from the wires. Aside from the evil of the bulging shape, many of the cells must be as much stretched as if it had not been wired.

I turned it around to start the bees on the other side; but I see where I shall have a comb that will not be too good to be mutilated by pushing in a cage to introduce a queen. It may have been given too soon, for the bees had hardly finished drawing out its predecessor. Perhaps if I had waited till the bees were really hungry for another frame they would have taken hold all over it; nevertheless, my next frame will go in between combs that have bees on both sides of it, whether those combs have brood or not.

Bullard Vale, Mass. STEPHEN T. BYINGTON.

A. I. Root

OUR HOMES

Editor

And God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.—GEN. 1:26.

In the sweat of thy face shalt thou eat bread till thou return unto the ground; for out of it wast thou taken; for dust thou art, and unto dust shalt thou return.—GEN. 3:19.

All things work together for good to them that love God.—ROMANS; 8:28.

A year ago or more somebody asked through GLEANINGS whether inventors had yet produced a gasoline motor that would run a cultivator in place of a horse; and after we had spoken of the advantages of such an invention Dr. Miller reminded us that we had not said anything about the horse stepping on our plants, especially when he turns around, etc.

There is another thing I have been thinking of. At just the right time after a rain the ground will cultivate beautifully with a light cultivator, when it is too soft for a big heavy horse to tramp through the rows. Of course, people often cultivate when it is *too* wet; but the tramping of the horse does much injury in compacting the soil unless it is very dry. By the way, this present season we have had gentle summer showers so frequently—at least in our locality—that I have as yet, July 10, had no use for our irrigating system. Well, as our garden is small, and I have strawberries, asparagus, pie-plant, and other stuff where we cannot plow, and where it is quite inconvenient for a horse to turn around without doing damage, I decided not to have a horse in the garden at all this season. So I procured one of the latest easy-running hand cultivators. It did the work finely, but it was pretty hard work unless I cultivated a few rows and then did something else to rest. Of course I could have called on one of the big stout men from the lumber-yard; but of late Mrs. Root and I both have been planning to get along by ourselves as much as possible without calling on outside help. Several times when I was too tired to run my cultivator any longer (at just the right time after a shower to have our heavy clay soil work to the best advantage) I was wondering if I could not have either electricity or gasoline to reinforce my strength. As Ernest and Huber are both tolerable experts, and pretty well posted in regard to motor electricity and gasoline motors, I interviewed them on the matter. I wanted something to furnish power, and something that was light, and which I could easily handle. Hu-

ber said there was no motor made that he knew of that weighed less than 50 lbs., for gasoline; and 50 lbs. added to my hand cultivator would make it unwieldy in turning around at the ends of the rows, and hard work to handle. He said an electric motor would do it nicely. I had in mind something for old people and boys. A boy could often do a strong man's work if he had the strength. Our readers are aware, of course, that in the great wheat-fields they have a little motor attached to the harvester. It supplements the work of the team. The team pulls the machine along, and a little gasoline-engine furnishes the power to cut the grain. The difficulty with electricity for a motor, however, is that you have got to have a storage battery or a trolley wire. The storage batteries (even Edison's latest) would be too heavy, besides the expense. A very light wire would furnish all the power needed, but we would have to go to the expense of running wires overhead, and, all together, the apparatus would be too complicated.

While we are considering this matter it may be proper to mention that the Ford people are now making something to take the place of a horse. I do not know whether it will pull a cultivator or not; but I have seen an announcement that Ford expects to have 30,000 of them on the market in September. I presume, of course, it would be too heavy and expensive for what I have in mind. With what I have been saying before you, let me submit a clipping from an excellent article in the *National Stockman and Farmer*, by our good friend W. I. Chamberlain:

It is next to folly to ask incessantly, as the non-thinkers do: "How can we keep the boys on the farm?" We don't want to keep them all on the farm. With present machinery, I repeat again, two boys growing to be men can do the work once done by ten. The other eight should and will go to the cities, the great centers of manufacture, commerce, and transportation. Four things the cities must have from the country or they will die: Pure air wafted in; pure water piped in; pure food brought in on wheels, and pure, fresh human blood drawn in by a legitimate and irresistible attraction. These vast results of science, invention, and the increased use of nature's forces are, I again insist, on the whole beneficent and only incidentally and locally disastrous. And they are irresistible. "You might as well try to dam the waters of the Nile with bulrushes" as to dam this rising tide of vast beneficence, or damn the thinkers, scientists or inventors who cause that rising tide.

After reading the above I said amen to it, and then added, "Let all unite in making our towns and cities *safer* places for the boys who leave the farm to go out in the

world. Let us *make haste* to drive out the saloons, gambling-dens, and red-light districts."

Now, with our readers' permission we will let that cultivator with its bright sharp clean hoes rest a while in the shade while we talk about something else.

When I was ten or twelve years old my father rented a pasture-lot that contained a piece of woodland, and the trees in it were mostly sugar maple. I begged the privilege of using the trees for a sugar-camp. I think there must have been thirty or forty trees. I was given a kettle, some tin pails, a sharp little ax, and told to "go ahead." And I want to tell you that one of the happiest days of my childhood was when I made sugar down in the woods just below that Mogadore pond. The rest of our family of seven were pretty sure to go down to the sugar-camp when "sugaring-off" time came. I was so careful of my utensils (of course under my good mother's directions) I produced the nicest maple sugar, stirred off white and dry (like what we call "maple cream" nowadays) that no wonder friends all around became fascinated by this springtime industry. Some of you may recall that, years after, Professor Cook and I published a little book on maple-sugar making. Well, throughout all my life when springtime comes I have longed to get out in the sugar-camp and taste the delicious maple syrup once more. During those boyhood days we used to hunt up a little snow, if we could find it in some drift that had not entirely melted, and the hot sugar was dropped on the snow so as to make ice-cold maple wax. The great world may talk about ice-cold lemonade and other temperance drinks and the various kinds of ice cream; but to my notion nothing has ever yet—no, not even honey—equaled the God-given *new* maple sugar.

Once more, friends, I ask you to bid good-bye to the *sugar-camp*, while we talk about something else.

Forty years ago or more, while working at the bench as jeweler and watchmaker I not only put in the orthodox ten hours, but twelve, fourteen, and sometimes fifteen hours. My digestion became impaired—funny, is it not? Well, I consulted a noted Cleveland specialist. He said the trouble was that everything I ate, especially fruits, fermented. He added that I was running a sort of "beer-shop" in my stomach and intestines; and from some unpleasant experiences I had been having I thought he was about right. He said I should first get outdoors, no matter what happened to the jewelry business; and this was quite an

element in getting me started in with chickens, bees, and gardening. Furthermore, he said that if I wanted to get back to health *quick* I would have to cut off all starch and sugar—everything sweet. In fact, he put me on a diet of lean meat, principally ground beefsteak; and for *eighteen weeks* I did not taste a crumb of bread nor anything but lean meat of some sort. Some of you may think this is a rather large story. In fact, my good friend Professor Cook once said, before he knew me very well, that it was impossible—a man could not *live* on lean meat alone. From an average of about 135 lbs. I went down to 112. This was when I was riding a bicycle; and when I got warmed up I had so little weight that I could go uphill and down almost like a bird. But, dear friends, the tired and exhausted feeling that I had during those eighteen weeks was terrible. After I had become warmed up by exercise I got along pretty well. Why, I have lain awake nights longing to get a taste of some moldy crackers that somebody had thrown out in the road; and when I saw red apples ripening on the trees—well, I felt as if I would give a dollar apiece for a great lot of them if I dared disobey the doctor's orders. I got over my indigestion; but I think now the outdoor exercise with a careful diet, including grain, fruit, and vegetables, would have done about as well. Under some circumstances, perhaps many, the lean-meat diet may save life; and once in a while even now I tell Mrs. Root that I shall have to get back to beefsteak for two or three meals. I do not regret this experience, for it gave me a love for fruit, grain, and other gifts of God that I should never have had otherwise.* When the doctor told me I was all right, and that I might eat what I chose, providing I was careful, one of the first things I wanted was ground wheat, and I had a grinding-mill attached to the windmill that used to make the hives long ago. My favorite dish for quite a while was boiled cracked wheat and maple sugar or good honey. I think Mrs. Root told somebody that I ate a *punful* at a meal; but she did not say how big the pun was. I soon got back to my 135 lbs.; and after a trip to California I got up to 140 lbs. Now, I tell

* Just one word about that eighteen weeks of lean meat diet. A good many of the doctor's patients "broke over the traces." They would get real hungry for fruits and sweets, and eat them on the sly. But the doctor, with his microscope, claimed he had a method of detecting such cheats. Well, I made up my mind that I myself, and not appetite, was going to be boss. I learned self-control. I learned to be master of temper, appetite, and almost everything else. The experience has been of value to me, all my life. But, of course, again and again I fell back on my little prayer, "Lord, help."

you it is worth something to be able to enjoy the wheat, sugar, and honey as I did, after my long fast as you might call it.

Do you wonder how I am going to get my three rambling stories hitched together when they are so diverse? While I had in mind a longing for more physical strength to run that cultivator, Mrs. Root reminded me we had not had any maple sugar nor syrup since we came back from Florida; but we found some very good syrup in the market. Remembering the days of childhood I sugared off some and stirred it while cooling until it was white and had a soft fine grain. During the forenoon I ran the cultivator a little more than usual because the ground was exactly right after a summer shower. Now, a good many times when I get tired I take a nap and then go to work again; but while sweating and thirsty, somehow I feel a great longing for some of that nice maple sugar; and while eating it it occurred to me that I had read in the government bulletin entitled "Sugar as Food," that there is quite an element of *strength* in sugar where the digestion is able to manage it. The lady who wrote the bulletin said she had watched the colored babies in the South when sugar-cane began to be ripe enough for them to chew it and suck out the juice. She said they got all over their infantile troubles, and became fat and healthy and happy all at once, under the influence of *unstinted sugar-cane juice*. I thought I would make a test to see if a good lot of maple sugar would not take the place of the motors I have been talking about to back me up with the cultivator. I guess it was a month ago that I made the experiment. I thought I would not mention it till I had given it a good test; and it rejoices my heart to be able to tell you that a good lot of nice pure maple sugar is all the motor I want. I chew it very thoroughly, and drink plenty of pure (boiled) cold water with it; and it braces me up to do a pretty fair man's work, even if I am "going on 76." In fact, I doubt if we have a man in our lumber-yard who can clean out a garden, or who *would* clean out a garden, as quick as I do it and do it well. May God be praised for sugar, and especially for maple sugar.*

* It is now July 1, several days since the above was put in type; and it is proper to say that the craving for maple sugar has gradually disappeared; but I still take a little every day—say enough to go with my strawberries and cream which I have been eating (in place of apples). If I am correct, my craving for sweets was because I have been eating so little sugar that nature called for it; and, by the way, I believe that an unperverted appetite will direct us wisely and faithfully, as a general rule, in regard to diet. My digestion is now in excellent condition. The great amount, comparatively, of maple sugar I ate daily for two or three weeks did

Just now I do not know that I enjoy anything much more than using that cultivator and my hoe in our pretty little garden. I would rather work in the garden than to travel, go to conventions, picnics, etc. There is another thing that makes me enjoy it; and that is, such work *bears fruit*. The children often caution me, telling me that so much sugar would do harm sooner or later. But the harm has not come. My digestion is better than it has been for years. Of course, we are not alike; and, still more, at different periods in our lives things agree or disagree. Some of you may ask why I say *maple* sugar. Well, I have tried cane sugar, but, for some reason I cannot understand, it does not "fill the bill." And, finally, my beekeeping friends will ask why honey does not answer. I have tried different kinds of honey, both comb and liquid, and *it* does not answer like the maple sugar. I do not really know why; and I am surprised to find that sugar taken *with* fruit does not seem to answer the same purpose. Maple sugar furnishes the most strength and the most perfect digestion, taken at different times during the day when I am tired and sweating. Lest you think I am getting wild, and have simply got astride of a new hobby, let me ask you to read the chipping below:

SUGAR AND THE GERMAN SOLDIER.

A German exchange reports a letter from a German soldier who is at the front in which he lauds the use of sugar. He writes: "We made some remarkable and surprising discoveries in observing ourselves and others. Even though a soldier had no liking for sugar this article became his best friend on marches and during severe cold weather. In most places that we visited the stores were 'stormed' and all the sugar was bought up. This great need for sugar, which is easily converted into muscle and heat properties on the march and in camp, is perfectly natural. The particle of instinct that still survives the trying circumstances cries out for sugar, or tea heavily seasoned with sugar. And this is particularly noticeable in those who have had an aversion to sugar heretofore."—*Louisiana Planter*.

If it were *honey* I am writing up in the way I have above, I should feel a little deli-

not impair my digestion nor interfere with my health in any way. Perhaps the physical exercise I have been taking daily has had something to do with the need for sugar.

Very likely honey will answer just as well for most people. Perhaps I might remark that maple sugar, if I am correct, is a product of the New World—America, and I believe I have read somewhere that when our forefathers first began boiling maple sap and found it would grain and make sugar there was great rejoicing; and I feel quite sure, also, that inasmuch as it does not pass through the same chemical process as does our white sugar from beet and cane, it is a more natural diet, and more wholesome. In Florida much syrup is made from different varieties of cane grown in the gardens; and I believe the people who make their own syrup in this way find it more healthful and wholesome than the sugar made in the great factories from beet and cane.

I have seen it stated somewhere that our own state of Ohio produces more maple sugar and syrup than any other state in the Union.

cate about giving it; for some of my enemies (come to think of it, I don't think I have any *real* enemies just now) who are disposed to take exceptions to these Home papers might say, "There, just see how A. I. Root is puffing his own wares." And I should hesitate, too, about giving the above to you if it were true we now deal in maple sugar and maple syrup as we did some years ago. Our present business has so increased that we were obliged to give up all outside issues, and never expect to handle the maple product again.

Our first text tells us that God planned to give man dominion over everything that grows—animal and vegetable, and we are just now beginning to wake up and take in what that promise includes. Just think of it! The oil under the ground that nobody knew anything about for ages—where would our automobiles be now were it not for this oil? and I might use a page or pages in enumerating the blessed gifts that for ages have been trodden under foot—sweet clover, for instance. We *tried* to tread it under foot, but it would not "stay down."

In regard to the second text, I cannot be happy—that is, *very* happy—unless I work at something that starts the perspiration every day of my life. In fact, it is hard for me to read your kind letters and dictate answers for an hour or two without going out into the garden. If it had not been for the "sweat of my face," I should not have discovered that the product of the maple tree is a motor to reinforce my strength in old age far better and grander, and infinitely more simple, than gasoline or even an electric motor. "All things work together for good to those who love God."

Finally, dear friends, the work that I love—in fact, I might say the greatest joy of my life at present—is hunting up God's gifts, and particularly getting in touch with others (including the Department of Agriculture), who are in a like manner developing God's wonderful precious gifts, *planned before the beginning of the world*, to bless and make happy the children whom *he* loves and the children who love *him*.

"WHERE THIEVES BREAK THROUGH AND
STEAL."

When we built our cottage just south of Bradentown, five or six years ago, our carpenter picked out a lock for the front door, that cost, I think, two or three dollars. I took it back to the hardware store to change it for a cheaper one; but the dealer thought that was just the lock we needed on such a

building. I replied, "My good friend, I agree with you that in a locality 'where thieves break through and steal' such a lock is doubtless the very thing; but here in Manatee Co., where we have never had an open saloon, and where thieves do *not* break through and steal, a cheaper and less complicated lock will be all that is needed." Although we have left our home and premises here in Bradentown for the last half-dozen summers, I have been proud to tell the people there in Ohio how safe and secure places like my own are where people spend only their winters in Florida.

With this in mind you can imagine how pained I felt to get the following letter from my good neighbor Mr. Harrison, whose home is close to my place:

Dear Mr. Root:—Wesley has just been over to tell me that some one or, rather, *two* people, visited your chickens last night. He saw where they got over the fence and scattered some feathers. It looked as though a chicken came near getting away by the looks of the ground and the feathers left there. The tracks evidently were made by men, not boys. Wesley is distracted about it. I don't see any way to head them off but to move the chickens away for a while. It would not pay to set a watch nights, because they may not come again for days or even weeks, for that matter, and yet they may come every few nights until all are taken; and if they found no one to interfere they might take the whole lot one night.

C. S. HARRISON.

Bradentown, Fla., June 26.

I hardly need tell you, good friends, that the loss of the chickens mentioned above is but a small matter—just a drop in the bucket compared with having Bradentown and Manatee Co. lose the good reputation it has enjoyed for so many years; and, more than that, letting the culprit go unrebuked for his foolish invasion of our premises. Up here in Ohio it is a penitentiary offense for stealing chickens. I do not know how it is in Florida; but it is of much importance that little acts like these should be restrained at the outset. All good Christian men and women should unite in helping to discourage this sort of pilfering, and encourage law enforcement, if nothing else will answer.

I have repeatedly spoken of the good habits and good behavior of the colored people of Manatee Co., contrasted with other places; and, in fact, at just about the time this happened I made the following mention in our journal of the state of affairs in our neighborhood:

Let me repeat what I have said about Manatee Co., Florida. There has never been a saloon in that county, and, God helping us, there never will be one. As a result, my good neighbor Mr. Rood had a poultry-house undisturbed for years right up against the fence along the highway. A passerby could, in fact, reach through and get a chicken if he wanted to, and yet our population is largely *colored people*

whose loose habits and fondness for "chicken" have been proverbial.

There is still another aspect to the matter. If the one who is guilty of this act could be kindly taken in hand he might repent and never be guilty of the same act again. Remember the beautiful promise, "He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

Later.—After the above was in type Wesley sent me the following:

I've moved all the chickens over to Mr. Rood's. There are 35 old laying hens and 85 young chickens I took to Mr. Rood's, and those are what are left. There were 7 ducks left also. Mr. Rood says if they had been left there every one of them would have been taken. Chickens are being stolen all over the whole neighborhood.

Manatee, Fla., June 29.

WESLEY WELCH.

From the above it appears that between forty and fifty of my chickens were stolen, mostly old hens. Well, if such things must go on, it is no more than fair that I should have my share of it. I cannot now recall that during the past sixty years during which I have had more or less to do with chickens I have ever had any stolen before, although I have had frequent reports from others who have lost in that way. Not only for the good of the hard-working people who are deprived

of their honest earnings, but that this sort of pilfering may be checked at the outset, will it not be well for poultrymen to combine and form an organization such as we used to have years ago when horse thieves were so common? If it is true, as Wesley states, that the whole neighborhood is suffering from the loss of chickens, it behooves us to combine, and in that way I feel sure we can ferret out the guilty ones. I will gladly do my part, both in time and money.

My good friend W. P. Root just informs me that over sixty years ago the farmers of this county, and Wayne on the south, formed what is still known as the "Union Perseverance Company for the Detection and Apprehension of Horse Thieves," and so effectual was this company that they claim no thief ever yet escaped their clutches. Aided now by the telephone, horse-stealing is a thing of the past in this section.

Perhaps, dear friends, there is a providence in the loss of my forty or fifty chickens. It reminds us to wake up and look after transgressors.

Would it not be in line for the Sunday-schools, the Endeavor societies, and the Y. M. C. A. to take hold of this sort of missionary work?

HIGH-PRESSURE GARDENING

CORN-PLANTING, ETC.

We are raising some pretty good corn here on our own premises; but scarcely a season passes but that I learn some lessons and see where I have blundered. To illustrate:

Our ground was nicely fitted. Our seed corn was so carefully saved and tested that I threw out only three ears from 100; and as our two old hand corn-planters did not work just to suit me, I bought a brand-new one, and our three acres of corn was to be planted with this one planter; but when the man got about half through the field Mr. Calvert, noticing a storm coming up, borrowed two more planters of a neighbor, and set two extra men planting. As a result, the corn was all in nicely just before the big drops of rain came, and we were congratulating ourselves that we had managed so nicely. Well, when the corn began to come up we were worried sometimes by finding six or seven stalks in hills planted with the borrowed corn-planters; and, in fact, all through the field there are more or less hills having five or six stalks. I believe it is

pretty well decided that, even if it is a big job, it pays to go through a cornfield and pull out all over four stalks in a hill. I think some claim there should not be more than three stalks.

Now, I have a confession to make on my part. I know there are sieves in the market to screen out all the small grains; but with our small field of corn I decided it would not pay. But what do you think it cost to go over that field and thin it down to three or four stalks in a hill? Well, it cost enough to buy two more brand-new planters, and perhaps a sieve to sort the grains as well.

There is another thing that can be done and should be done. After each ear of your seed corn has been tested for germination, pick out all the ears having the largest kernels, and put them by themselves. Pick out those having the smallest grains in the same way, and make two if not three grades. When you begin planting, adjust your planter to drop three or four grains of the large size. When the large size is gone, adjust the planter for the medium size, and, lastly, the small grains or give them to the

chickens, which, perhaps, would be the best way. I suppose these boy corn-growers have been all over the above, and are probably better posted than I am.

There is one more point that might be considered right here. One of our experiment stations, by means of a suitable sieve, or by hand sorting, picked out the largest seed corn, wheat, beans, and a whole lot of other things. They tested the large seed side by side with the small or inferior seed. If I recall correctly, the big seed by the same treatment gave almost double the crop. I think there were some exceptions to this result; but the decision was strongly in favor of using the very best seed obtainable whatever you undertake to grow; for "whatsoever a man soweth, that shall he also reap."

FETERITA AS CHICKEN FEED.

Since the article on page 558 was printed I have received pictures of my feterita in Florida. One of them shows the feterita higher than a man's head, and yet the seed had been planted only about 45 days; and I think that in 60 days, with good warm weather, especially with good warm weather *at the start*, you can have grain fit to feed to the chickens; and if you have a hot dry time the feterita will not mind it very much. The other non-saccharine sorghum (kao-liang) may do better still, but the seed is much smaller. It is now making a tremendous growth here in our Medina soil. From the above you will see there is plenty of time now to sow or plant either of the above and get a crop of grain before the frost will hurt it. Feterita seed is advertised in our various catalogs. If you want just a few grains for experiment I will send you some of either, free of charge.

SQUASH-BUGS — ESPECIALLY THE YELLOW STRIPED VARIETY.

This year, as well as last, we have had a regular pitched battle for the last two weeks in trying to save our melon and squash plants. Just as it was last year, the first I saw them was on Sunday morning. They came in a swarm, and would have had my nice thrifty vines, just coming out of the ground, chewed up before night. I went and got my wire-cloth baskets, such as I used last year, and pushed the edges of them down into the ground, and made everything tight, as I supposed. But the bugs were either hidden down in the dirt, near the roots of the plants, or they hatched out in the ground. Perhaps some of our readers can tell me if the latter is possible. As I did not have baskets enough to cover them all, I tried moth-balls, which seemed to suc-

ceed so well last year. But this time they paid but little or no attention to them. After the vines—especially the squash-vines—got so large they were cramped and crowded in the wire baskets, I was obliged to take them off, and then I commenced picking by hand. The bugs fly so quickly that it is a pretty hard matter for an old man to catch them before they are gone. But I crushed them up between my thumb and fingers, and dropped their mutilated bodies among the plants, hoping the rest would take warning.* Finally I read in one of the seed catalogs that *tobacco dust* would do the business. At first it seemed to keep them away; but they soon became used to the tobacco, and I was afraid the tobacco dust would eventually cost almost as much as my melons and squashes would amount to.

Well, my plants were finally so badly mutilated that I decided they would never amount to much unless they had some extra care and manure. So I procured some old black rotten stable manure containing quite a little cow manure. I scraped away the dirt from the plants so as to get down near the roots; and, even if my compost was rather bad-smelling, I spread it around all my plants, then covered the manure with nice mellow soil in order to prevent evaporation. What do you think? There was no more trouble from the bugs; but in going over my twenty or thirty hills, by mistake I missed one. Next day there was not a bug on any of the plants where I had placed the manure; but on the one plant that was skipped by accident it was almost literally alive with them. I think somebody said a while ago, through GLEANINGS, that old rotten cow manure (or it may be *fresh* manure) would keep off the bugs; but I had forgotten it. After I had got it all done, Mrs. Root suggested that if I had put a fair-sized shovelful of it into each hill, well mixed with the soil before I planted the seeds, perhaps I should not have had any two-weeks' fight on my hands. Summing it all up, my experience is that these bugs are repelled by any strong odor or perfume.

* By the way, when you do not have very many plants, hand picking is perhaps the surest and simplest method. When the bugs are at their worst it may be necessary to get around and pick them off the plants every two or three hours; and if this is followed up faithfully they will soon give up the job. When they get the impression that the owner is going to get around about once in so often they will soon decide that it is unhealthy business and move off into some other garden. Some of you may recall that in our potato-book Terry insists that hand picking is the cheapest and simplest way to get rid of the Colorado potato-bettle, and that is just what I am doing now. I caught the mother-bugs when they first made their appearance, and it was not a big task either. I do not like poisons of any kind if we can manage to get along without them.

It does not make much difference whether it is moth-balls, strong tobacco dust, or foul-smelling stable manure.

KAOLIANG; A NEW GROUP OF GRAIN SORGHUMS.

The above is the title of a 64-page bulletin, quite well illustrated, from the Department of Agriculture. It appears from the summary that there are 27 distinct varieties of kaoliang; and more or less of them have been tested in the United States for a number of years past. The Department also sent me one pound of seed. It was planted June 16, and to-day, the 21st, it is up very nicely. These grain sorghums are tremendous growers when the weather is favorable. We happened to have quite warm weather and warm rains after the seed was planted. The seed is quite a little smaller than that of *feterita*; but it cooks much quicker—at least the sample sent me did, and it tastes very much like *feterita*. We copy the following from Mr. Meyer, who was sent by the Department to China to investigate:

Of the many crops the Chinese grow in North China, the sorghum is unmistakably the most important and the most useful. Without it life in a great part of North China and Manchuria would be almost impossible, for the variety of uses to which the kaoliang is put are legion, and it could not very well be replaced by any other single crop.

The light-colored varieties are ground into flour, out of which cakes are made, or they are simply boiled in water and served in the form of a gruel to the Chinese laborers, and it is amazing to see how much a Chinese can eat of it. I have seen my own interpreter eat three big bowlfuls for breakfast in the early morning and still feel comfortable. As a feed for horses and mules one certainly can say that the kaoliang seeds, especially the dark-colored ones, in North China and Manchuria, take the same place that oats do with us.

The stalks of kaoliang are almost as valuable to the Chinese as the grain itself. In the semiarid north, where all of the wild arboreal vegetation has either been exterminated, or at least has been reduced to such an extent as not to form an important item any longer, one finds that the stalks are the chief supply of fuel. They are used to cook the food, to heat the brick bedsteads in winter time, to boil the water for tea; in fact, are used whenever heat is needed. Another important role they play is in the fine fencing material they furnish. In North China, in winter time, the icy wind blows with great violence all over the plains. To protect themselves, at the approach of the cold season the Chinese build fences around their houses, yards, pig-pens, etc., and comfort would certainly be still more reduced in North China if these kaoliang-stem windbreaks were unobtainable.

These stalks are used also as supports for plants in the vegetable gardens. They serve as poles for beans, cucumbers, and yams. They also lend themselves to basket and matting making, and in Shantung I even observed highly colored varieties that were grown for the express purpose of furnishing fancy basket and matting materials. In making the finer qualities of baskets the outer skin only is used, being split off by hand and woven into the various articles desired by skilled men and women.

For large coarse baskets, however, the whole stems are taken while they are still fresh, for when once dry they cannot be manipulated very well.

Still another use the Chinese have for these stems is to chop them up, mix them with a few handfuls of boiled black soy beans, or kaoliang seeds, or bean cake, and serve them to their hard-working horses, mules, and donkeys—in the greater part of North China about the only food the draft animals ever get.

One would think by this time that the list of uses for the stems was pretty nearly exhausted, but there are still a few more; for instance, when an ordinary Chinese laborer builds himself a home he first erects a frame of poplar and willow poles; between these he places kaoliang stems. The whole frame is then smeared over with mud, in which chopped-up straw or hair has been mixed, and the house is then ready to move into. In the primitive greenhouses of the Chinese these sorghum stems serve as bars to hold the paper windows. They also constitute the frame of the roof upon which the clay is smeared.

There are several minor uses yet for these stems, such as frames for kites, paper animals, playthings for children, etc., but I am afraid that the list would be too long to add here.

A last item about the kaoliang: Even the roots are not allowed to stay in the ground, but are carefully grubbed out by a stroke of a peculiar hoe or grub and a pull with one hand, are dried, stacked up in bundles, and sold and used all over the land for fuel. One certainly might ask, what would the farmer of North China do if he had no kaoliang to fall back upon?

My impression is just now that, as *feterita* has a much larger grain, and is a much greater yielder, it will be found more profitable. But it may be that kaoliang is going to be superior as a food product. Below is a report from our friend Mr. Harrison, just at hand:

Friend Root:—I am sending you four heads of *feterita*, one each of Egyptian wheat, and chicken corn. Your garden is looking fine. Some *feterita* planted since you went away is 4 ft. tall. Wesley also planted some sweet corn that was given me, that is beginning to tassel and silk. It is about 4 ft. high. Everything is looking correspondingly well. The chickens like the *feterita* better than corn. The birds like it also.

Bradentown, Fla., June 16. C. L. HARRISON.

The *feterita* that was planted after I left must have made a growth of four feet in a little over forty days. The fact that chickens prefer it to corn is also in its favor. I have instructed Wesley to gather the heads and give them to the chickens every day. As the *feterita* is close by their yards it will make a very short cut from producer to consumer; and, if I am correct, if the heads are cut off as fast as they are fit for food, new heads will keep coming right along from the suckers. The Egyptian wheat and chicken corn also resemble *feterita*, but the grains are very much smaller. The chicken corn is, no doubt, a splendid feed for small chickens.

Later.—I have just received word from Wesley that he has been feeding *feterita* to the chickens for the past two weeks; and he says there will soon be a second crop grown from the numerous suckers.

FETERITA FOR CHICKEN FEED.

The following from our good friend Ault, of Bradentown, will explain itself:

Your feterita is great. Wesley has been cutting the ripe heads, and wherever a head has been cut one, two, or three more are putting out. The feterita will, no doubt, greatly reduce your feed bill.

JABOTICABA, THE "GRAPE OF BRAZIL."

As this new fruit-tree is receiving considerable attention, not only in Florida, California, Texas, but in other warm climates, I have thought best to give the clipping below, taken from the *Florida Grower*; but, as I understand it, the article was written by a Mr. Popenoe, sent out by the Department of Agriculture to hunt up new and valuable plants. On page 473, June 1, I spoke of the two little trees we have in our Florida garden.

Among the many indigenous fruits of Central and Southern Brazil, few create so strong an impression on the new comer as the jaboticaba, not only because of its habit of producing its deciduous fruit on the trunk of the tree from the ground up, but also because of the unusual beauty of its symmetrical, dense, umbrageous head of light-green foliage, which entitles it to a place among the best ornamental trees of the region.

The tree is generally considered the handsomest of all the *Myrtaceae*. Under favorable conditions it grows to a height of 35 or 40 feet, the trunk nearly always branching close to the ground. The leaves are opposite, ovate-elliptical to lanceolate, acute at the apex, generally glabrous, with the margins entire. They vary from three-fourths of an inch to over three inches in length, their size being one of the characters by which the different horticultural forms are distinguished. The flowers are small white, produced in clusters on the bark from the base of the trunk to the ends of the smaller branches, sometimes so thick as almost to hide the trunk from view. In form they resemble those of the myrtle, with four small petals and a prominent cluster of stamens. The normal season of flowering is said to vary with the different species, although it is quite a common occurrence for the trees to flower and fruit several times during the year, when they are in cultivation and supplied with an abundance of water.

The fruit, which develops rapidly, and ripens within two or three months after the time of flowering, is round or slightly oblate, half an inch to an inch and a half in diameter, deep, glossy maroon-purple in color, crowned with a small disk at the apex. White, sessile, or nearly so, in some varieties, in certain others the fruits are produced upon slender peduncles, not over one inch in length. Between the two extremes in size there are many gradations, those considered the largest usually found in the markets, averaging about an inch in diameter. The skin is thicker than that of the grape, and considerably tougher. It contains, besides coloring matter, a large amount of tannin. The translucent, juicy pulp, white or tinged with rose, is of a most agreeable vinous flavor, suggestive of the rotundifolia type of grape. This similarity to the grape is not confined to the flavor alone, the external appearance, character of the flesh, the size and number of seeds, as well as the flavor, all bearing such a striking resemblance to the grape as to have earned for the jaboticaba the title of the "grape of Brazil." A good jaboticaba is so thoroughly agreeable as to tempt one to keep on picking and eating the fruits indefinitely,

a temptation to which strangers as well as Brazilians often yield.

The fruiting habits of the jaboticaba are somewhat unusual. When heavily laden the tree is a curious sight. Not only is the trunk covered with clusters and masses of glistening jaboticabas but the fruiting extends to the ends of the smaller branches, which all produce their share of the crop. When one stops to consider the small size of the fruits and their abundance all over the tree, it is apparent that the numbers produced by a tree of large size much be enormous. While the fruit is adapted to a number of different uses, at present most of it is consumed in the fresh state, frequently direct from the tree.

In Brazil, propagation seems to be exclusively by seed, although the foreman of one of the principal nurseries in Rio de Janeiro stated that he had successfully inarched young trees, and considered this a desirable way to perpetuate choice varieties.

"SUGAR AND ITS VALUE AS A FOOD."

The above is the title of Farmers' Bulletin No. 535, containing 32 pages, written by Mrs. Mary Hinman Abel. From it I make the following extracts:

The addition of sugar to an ordinary or to a meager diet also considerably increased the capacity for work, the effect of the sugar being felt about a half hour after eating it, and its maximum effect showing itself two hours after eating. The coming of fatigue was also found to be considerably delayed on this diet, and taking 3 or 4 ounces of sugar a short time before the usual time for the occurrence of fatigue prevented the appearance of it.

It is true that the harvester, lumberman, and others who do hard work in the open air consume great amounts of food containing considerable quantities of sugar, such as pie and doughnuts, and apparently with impunity; but it is equally true that people living an indoor life and that undue amounts of pie, cake, and pudding, with highly sweetened preserved fruit, and sugar in large amounts on cooked cereals, almost always bring indigestion sooner or later.

Sugar is a useful and valuable food. It must, however, be remembered that it is a concentrated food, and therefore should be eaten in moderate quantities. Further, like other concentrated foods, sugar seems best fitted for assimilation by the body when supplied with other materials which dilute it or give it the necessary bulk.

You will notice it comes in very nicely with what I said in the Home papers in this issue.

NO BEES, NO HOME, YET WANTS GLEANINGS AND THE HOME DEPARTMENT.

I am both a librarian and a social worker, with little spare time, no home, and no bees; but I have loved bees and wondered at them as far back as I can remember; and it was a joy to stumble across such a completely satisfactory current study of bees as *GLEANINGS* one day in a seedsman's store. However, what has made me really miss the little magazine is the warm friendliness and good comradeship that makes itself quite evident in spite of the impersonality and coldness of print. They have often been an inspiration and a comfort to me. I shall be very glad to be back in the circle around the editorial ease chair of Mr. Root's Home department and Dr. Miller's Stray Straws, Mr. Doolittle's Conversations, and the other good editor-friends, as well as among the interested listeners of the words of the occasional article-writer friends.

HELEN, M. L. FOLK.

Philadelphia, Pa., June 25.